

THE Macdonald

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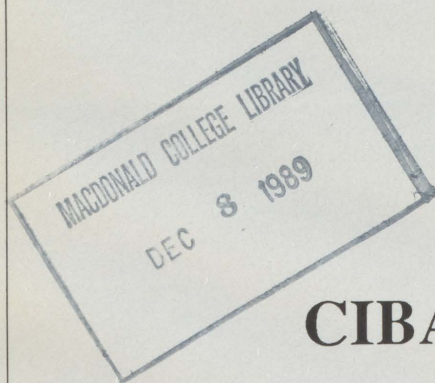
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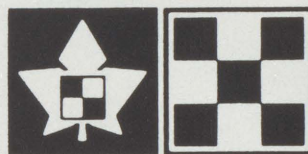
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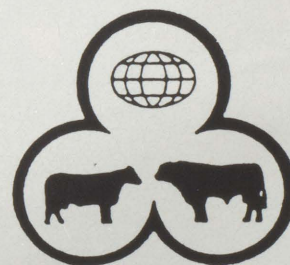
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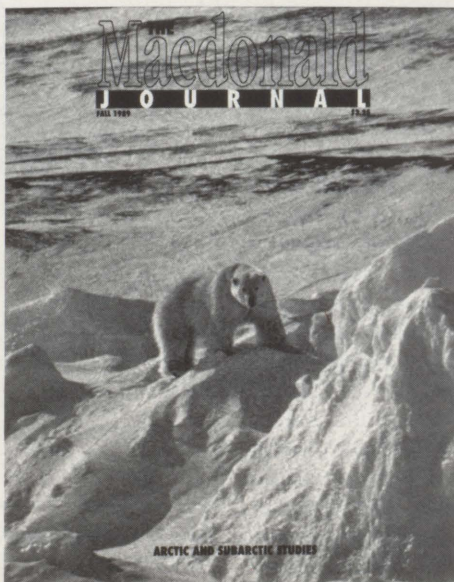
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Cover



There were several possibilities for a cover: I hope you agree the one we chose would be hard to beat for an Arctic scene. It has been a pleasure to work with the people involved in our "northern issue." Many are first-time Journal contributors. As Professor David Lewis, Coordinator for Northern Studies at Macdonald (and my coordinator for this issue) said, "the regular Journal readers and the general public will get a glimpse of an area— involvement in northern research and teaching of students in the North—that they would not expect from Macdonald College, an agricultural institution." My thanks to David Lewis, to the Macdonald staff and to the people from the downtown campus of McGill. I appreciate the enthusiasm and interest shown by the staff of the Arctic Biological Station and particularly thank Gary Sleno of ABS and Steve Tinker for their help in selecting a cover. I hope you find our "glimpse" of the North interesting; we've enjoyed putting it together for you.

Guest Editorial

McGill in the Circumpolar World



Dr. Marianne A. Stenbaek

Director, Centre for Northern Studies and Research, McGill University

During the last 20 years, a remarkable change in perception has taken place regarding the Canadian North. Not so long ago, the North (i.e., the Arctic and Subarctic) was regarded as a last treasure trove of resources, a vast awesome landscape peopled by ever-smiling natives on dog-sleds or canoes, happy to welcome the white southerners. Today that image has changed radically; the North is still a remarkably beautiful place but it has become a politically, economically, ecologically, scientifically, and culturally important place and its people have become highly conscious of their rightful place—as northerners, not imitation southerners—in the Canadian mosaic. We, southerners, must learn to deal with the North on its terms, not just ours.

Within Canada our perception has changed, but just as importantly, it has changed on a global scale. The Arctic and Subarctic have become a global theatre where industrial, environmental, military and aboriginal interests often clash and come into conflict—but they also have the possibility of becoming a place of co-operation and progress, to indeed become what Mikhail Gorbachev called a “global zone of peace.”

On the world's agenda two items now loom very large: global change and sustainable development. The North may well lead the way for the rest of the world in these regards. The Arctic is a bellwether for global change, for it is here that its effects may first be noticed in the sensitive ecosystems and it is also in the Arctic and Subarctic regions that global change potentially may have the greatest impact. The aboriginal cultures have long practised a balanced way of life with a deep regard and respect for the natural and human environments and their integration into a harmonious and sustainable whole. The rest of the world may well learn something about “sustainable development” from the North. I believe that the northern regions must, by necessity, become a leader in contemporary

sustainable development, for without that the Arctic and its peoples will not survive.

The Canadian North is a complex place, and it can no longer be treated/studied in isolation. Politicians often speak of a North-South dialogue, but in the Arctic the peoples speak more and more often of the East-West connection. During the last year, East Siberia and Alaska have melted the Ice Curtain that has passed through the Bering Strait since World War II, long separated families are being reunited, and a large number of scientific and business co-operative ventures are being established. Last spring the government of the Northwest Territories signed a new cultural, economic, and educational co-operation agreement with Greenland, Canada's closest neighbour to the east, and a “country” with which Canada now shares a common boundary (Hans' Island). Inuit settlements in Nouveau Quebec are “twinning” with sister-settlements in Greenland; Alaskan, Canadian and Greenlandic aboriginal students have studied at McGill and next spring we will receive the first Siberian student at the Centre for Northern Studies and Research. Numerous other circumpolar initiatives that involve governments, aboriginal groups, industry and/or scientists are being undertaken.

At McGill, the Centre for Northern Studies and Research has recognized these developments and has, in fact, played an active role in the development of West-East relations in the Arctic. We have been closely involved in arctic policy development through two conferences; we have estab-

lished a Circumpolar Studies Network with the University of Copenhagen and the University of Alaska/Fairbanks, and we are currently setting up a major “project” on circumpolar sustainable development (encompassing 14 individual projects) with the Institute of Northern Development in West Siberia.

Our activities are geared to our firm belief that a distinct circumpolar region is emerging which constitutes a new geo-political and cultural region in the world—a region with its own responsibilities and challenges, but also with many rewards. It is our belief that these opportunities demand imaginative new ways of thinking and that research needs must be interdisciplinary, international, and involve the aboriginal peoples.

McGill has a long and prestigious history of research and service in the Canadian North; we at the Centre for Northern Studies and Research hope to continue that tradition and to move that tradition forward into the new circumpolar world.



Sites of northern research mentioned in the articles that follow. Map by Pierre Langlois.

Dear Readers:

There is an old saw that we use as we shrug our shoulders and accept something that seems inevitable: "all good things come to an end." We would like to rewrite that to "good things don't have to end." If you list The Macdonald Journal as a "good thing," then just possibly you can help us to keep the magazine from ending its days with the May 1990 issue.

As many long-time subscribers know, The Macdonald Journal has been in existence for close to half a century. In that time it has undergone many changes: some people still refer to it as The Macdonald Farm Journal; it has had other names as well. The Journal has been published both by Macdonald College as it is now and by outside publishers. It started out life as a monthly publication, then went to 10 months a year, and since 1982 has been a quarterly. In 1987 we went to the use of colour and new desktop publishing technology. There have been several editors and a number of advisory committees. Rates have gone up; advertising has had its good and bad years. We have added Supporters to our list of "friends of the Journal"—and we value that support!

There have been changes, but there have also been some constants: over all these years members of the college staff have willingly written articles for the magazine, and many of the readers that started receiving the magazine when the first issue was published, are still on the mailing list. One of the biggest plusses in recent years has been the fact that more and more Macdonald College graduates have become subscribers to the Journal and, from letters received, are appreciating this way of keeping in touch. Starting with the last issue, all graduating students began to receive the magazine, thanks to the Alma Mater Fund of the Graduates' Society.

There is another constant, however: The Macdonald Journal has continually faced financial problems. The Dean of the Faculty of Agriculture, Dr. Roger B. Buckland recently stated that he sees a projected deficit for the Journal for the 1990-91 fiscal year of from \$35,000 to \$40,000. With present budgetary cutbacks in universities, a drop in enrollment in the faculty, and other demands for money to be used at his discretion, he has stated to faculty and to the Editor and the Chairman of The Macdonald Journal Advisory Committee that if this projected deficit cannot be diminished, the May 1990 issue of the magazine will be the last one published.

We don't want to see this happen. Many members of our faculty do not want to see this happen; many members of the Macdonald Branch of the McGill Graduates Society, including members of the Executive, do not want to see this happen. We hope that you, too, would like to continue receiving the Journal in your mailbox every four months. We want to continue to keep in touch with the community we are trying to serve. We feel it vital that we keep in touch.

We are considering several options: more advertising. This area looks promising but we need more help. If you or your company advertise at present in any of the various media, would you consider the Journal as a vehicle to carry your message? If you are selling a product, if you are in the market for customers, if you have a message to convey, then the pages of The Macdonald Journal might be for you. Our readers could be buying! The ad may be a business card, a quarter page, a full page, a four-colour full page outside back cover. Please call or write for our rates.

We are considering raising our fees once again. We hope that you will still think the magazine good value for the money. We are considering a smaller, less expensive publication, but one that will continue to maintain the standard of quality we are now used to.

We are going to renew our efforts to attract Supporters—those individuals and companies whose names and/or logos appear on the inside front cover. For \$2,000 a year your company's name and/or logo could also appear on that page. As well, you would be entitled to a half page black and white advertisement in the issue of your choice. Our reading audience may be small but we do feel it is a select group: your message of support would be reaching that group.

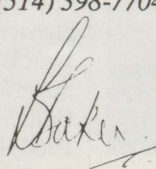
Not everyone can be a Supporter; however for those who would like to be a Friend of the Journal for a lesser amount of money, we would be pleased to print the names of those "friends" in each issue, if they wished. Tax receipts would be issued on request.

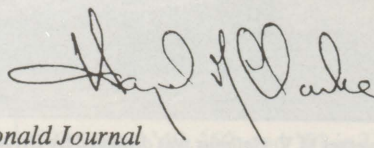
We can't ask you to take out a subscription: you already have one, and we thank you for that. We can ask if you have considered giving the Journal as a Christmas gift? That time of year is fast approaching. It is also an inexpensive birthday present. Is there a graduate you know who isn't a subscriber? Why not suggest he or she become one. Subscription dollars help bring the deficit down; subscription numbers help raise the advertising potential.

We welcome your comments and suggestions, but, unfortunately, they will not keep the Journal alive beyond May 1990. What we need immediately are some solid financial commitments: commitments that will take The Macdonald Journal well into the 1990s.

Information on becoming a Supporter, on advertising, or other aspects of the magazine may be had by writing The Editor or the Chairman of the Advisory Committee, The Macdonald Journal, Box 284, Macdonald College, 21,111 Lakeshore Road, Ste. Anne de Bellevue, Que., H9X 1C0, Tel.: (514) 398-7704, Fax: (514) 398-7895. We look forward to hearing from you.

Sincerely


Chairman of the Advisory Board


Editor, The Macdonald Journal

Northern Studies at Macdonald College

by Professor David J. Lewis
Coordinator of Northern Studies for Macdonald College

In recent years a number of Macdonald College staff have become involved in northern research and the training of students in the North. This issue of *The Macdonald Journal* provides an overview of some of these activities, which may be of a short duration or long-term, and which may be conducted by individual staff members or teams of collaborating scientists from other units or institutions. An excellent example of the latter involves individuals of the Arctic Biological Station (Fisheries and Oceans Canada, Ste. Anne de Bellevue) who are adjunct staff in the Department of Renewable Resources at Macdonald College. The Station is responsible primarily for marine biological research in the Arctic and for research on marine mammals.

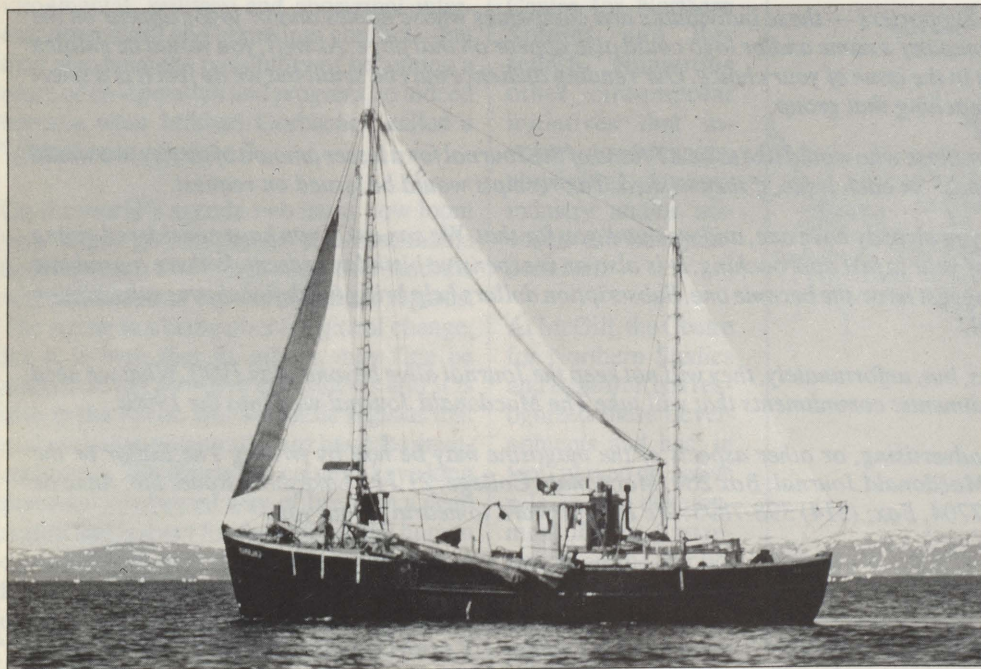
The feature articles in this issue commence with a profile of Dr. Max Dunbar, whose very name is synonymous with northern research. In fact, Dr. Dunbar was instrumental in the development and placement of the Arctic Biological Station. Then, there is a series of contributions which highlight northern re-



The McGill Subarctic Research Station in Schefferville.

search in humans, marine mammals, birds, fishes and fisheries, parasites, and insects. These studies are being conducted in the Arctic Ocean, Baffin Island; James Bay, Ungava Bay, and Schefferville.

The title "Coordinator of Northern Studies for Macdonald College" is somewhat of a misnomer, since I am not in a position to coordinate northern activities. Rather, I perform an important liaison function between the Centre for Northern Studies and Research and the Macdonald College community. The Centre, now located in Burnside Hall on the McGill campus, was founded in 1973, but northern research at McGill dates back to the last century. It performs a number of functions, not the least of which are an information centre and a coordinating centre, and it operates two field stations in the North which provide facilities for field training and research: the Subarctic Research Station in Schefferville (founded in 1954), and the Axel Heiberg Research Station (established in 1960) in the High Arctic. The Centre has two Co-Directors, Professors M.A. Stenback and T.R. Moore.



The research vessel M.V. *Calanus* was designed by Dr. Max Dunbar. She was the first Canadian ship specifically built for Arctic marine research.

Dr. Max Dunbar: A Pioneer in Arctic Science

the Dilemma for Inuit People

Dr. Max Dunbar, Arctic Institute
School of Dentistry and Human Nutrition

Fifty minutes is not nearly long enough to listen to Emeritus Professor Max Dunbar of McGill's Institute of Oceanography who highlighted some aspects of his long and successful career at a seminar earlier this year. His slides and talk given at Macdonald College on his work in the North made us anxious to hear more. After a luncheon following the seminar Professor David Lewis, of the Department of Entomology and Coordinator of Northern Studies at Macdonald College, and Professor Fred Whoriskey of Wildlife Resources, Department of Renewable Resources, talked with Professor Dunbar for the Journal. With articles in this issue focussing on the North and on some of the research being carried out there by those who follow in Professor Dunbar's footsteps, we are delighted to bring you this brief profile of one of McGill's most eminent professors.

Maxwell Dunbar was born in Edinburgh, educated there and at Trinity College, Oxford, Yale University, and at McGill University where he received his PhD (Zoology) in 1941. A love of the outdoors began at a very young age when he and his young sister would take off on long hikes in Scotland.

While at Oxford he took part in two summer expeditions to Greenland, first to West Greenland and then to Disko Bay. On his first trip in 1935 Professor Dunbar said that he was fascinated to learn that cod was so plentiful in Greenland when just 15 years before there had been no cod at all. A climatic change had shifted the ecosystem from south to north bringing into the area new species of sea mammals and of fish such as cod, halibut, and herring.

In 1939 Professor Dunbar had an opportunity to go to Hudson Bay as a visiting ecologist working aboard the supply ship *RMS Nascope*. His time was spent hauling plankton nets through the waters of the eastern Arctic—which was only the second time that this research had ever been done in that area.

His growing interest in the waters of the Canadian Arctic would take him back time and time again but World War II found him, first, training with the cavalry—the Duke of York's 17th Hussars, and second, travelling to Greenland to serve as Canadian Consul to Greenland from 1941 to 1946. Because of the climate, some career diplomats had found

Greenland's winters rather miserable and, therefore, people were often chosen because they had interests other than external affairs. "I used to borrow a motorboat every two weeks," Professor Dunbar said, "and go and haul plankton and measure temperatures, and so on."

Max Dunbar joined the McGill Faculty in 1946 and soon after became the scientist in charge and director of Eastern Arctic Investigations with the Fisheries Research Board. Dr. Dunbar said that the Fisheries Research Board had been doing work in many of the northwestern lakes from a fisheries development point of view. They wanted to expand into salt water. Hudson Bay, Hudson Strait, Foxe Basin, and everything north of Davis Strait were to be investigated from a general oceanography viewpoint and to see what resources could be developed for use by the native populations.

"Colleague Hank Hildebrand and I started in a simple way," Professor Dunbar said. "We put down long lines and we dredged. We didn't find very much except shrimp. At Port Burwell we found large numbers of Greenland halibut in the stomachs of cod. There was plenty of cod at Burwell. It's a wonderful fish. We also fished up shark. We thought these could be developed and they still can be."

As a ship was an absolute necessity and any that could be chartered was inadequate, Professor Dunbar designed and supervised the building of the research vessel *MV Calanus*. She was built in Mahone Bay, N.S., and had both sails and a diesel engine. This was the first Canadian ship specifically built for Arctic marine research. She was launched in 1948 and sailed to Fort Chimo (Kuujuaq). Max Dunbar started the trip but, unfortunately, a bout of hepatitis forced him to disembark in Halifax. Hank Hildebrand, however, was waiting to greet her. A specially built cradle was built for the *MV Calanus* and shipped out North in 1949.

"We spent '49, '50, and '51 in Ungava Bay, and then, in '51, we crossed over to Lake



Dr. David Lewis, Coordinator for Northern Studies at Macdonald College, left, Dr. Max Dunbar, Dr. Christiane Hudon of the Arctic Biological Station, and Dr. Fred Whoriskey of the Department of Renewable Resources.

Harbour and went into Frobisher Bay where we put the *Calanus* on skids on the cradle. With the help of that ship we were able to go to a great many places and get a great deal of basic work done which is what I insisted upon from the start. There was nothing known at all about the waters in that part of the world. I wanted the work to be more than fishing for shrimp and experimental fishing."

The pioneer work undertaken by Professor Dunbar during the years 1947-55 is the basis for present proposals and field work for the development of northern fisheries. Professor Dunbar said that by 1955 the work and the staff grew to such an extent that it was no longer possible to run the operation as a part time endeavour by a university professor. However, the investigations had by this time become firmly tied in with McGill University. As there was no adequate building space on the downtown campus, a building was built on land here at Macdonald College and the Arctic Biological Station moved to Ste. Anne de Bellevue in 1965. The Fisheries and Oceans research centre (see articles in this issue) continues to specialize in the basic biological oceanography started by its founder, Max Dunbar.

What makes the Arctic Biological Station unique? "It specializes in marine work and it's strongly biological in emphasis," Max Dunbar said. "Those two things are seldom found. The closest parallel I can think of is the Greenland Fisheries Laboratory in Copenhagen."

In 1972 Professor Dunbar was seconded from McGill by the federal Department of Fisheries and Oceans to direct a major study by scientists from the Bedford Institute of Oceanography, Dartmouth, N.S., to investigate marine productivity in the Gulf of St. Lawrence. Professor Dunbar spent two years with the Bedford Institute and during this period he learned that the Arctic Institute of North America, an organization sponsored jointly by Canada and the United States and located at McGill was to be moved to Calgary. The Institute had been placed at McGill because there was a good nucleus of people

there who were very active in work in the Arctic.

"The list of people at McGill who were and still are engaged in northern research is very impressive," Professor Dunbar pointed out. "The faculty at the top is Medicine with staff getting involved in all sorts of ways. There are specialists working in arctic diseases and they are constantly flying up to the Arctic for short periods of time. Many other faculties, including the Faculty of Agriculture and the School of Dietetics and Human Nutrition here at Macdonald are also involved in northern work.

"When the Arctic Institute left the campus, we felt we needed something to take its place and the Centre for Northern Studies and Research was formed. We started by building up a library, offering an Arctic course, and holding weekly seminars. It grew from there. With budget cutbacks, funding for the Centre has been tight in recent years, but there is certainly still a great deal of work being done and much more that remains to be done."

Last December the second Arctic Policy Conference sponsored by the Centre was held at McGill. The Conference attracted representatives from the Northwest Territories, Quebec, Newfoundland, Alaska, Greenland, and the USSR. Canadian and American native leaders were also present, as they have been at past meetings.

"The native people are becoming very vocal about the research being carried out in the North," Dr. Dunbar pointed out, "and these policy conferences are really discussions of their interests. They often feel we don't care and that we don't tell them what we are doing. I had a science policy session at the second conference and one of the topics was how to involve natives in scientific research. My answer is that we cannot get the native people to be happy about scientific research in the North until they themselves are educated to the point where they have become scientists themselves and take part in the research. There were three Danes at the meeting on science policy and they agreed. The Danes

have been in Greenland since 1721 and they have provided a very high level of education. The only difference between Greenland and Canada is time—native Greenlanders now do take an active part and it can also be done here. It will take time to get people from the North educated in science, but problems such as these are being handled extremely well through the Northern Studies Centre."

Over the years Professor Max Dunbar has received many honours and awards. In 1950 he received the Bruce Medal for polar exploration from the Royal Society of Edinburgh. In 1979 the Gold Medal of the Canadian Society of Zoologists, in 1986 the North Slope Burrough (Alaska) gave him their Arctic Science Prize, given for "Distinguished Scientists who have made significant contributions to man's understanding of natural processes in the Arctic." In 1987 Max Dunbar received the Centennial North Science Award, Government of Canada, and in 1988 he was awarded the J. P. Tully Medal in Oceanography by the Canadian Society of Meteorology and Oceanography, with the following citation: "He has made fundamental contributions to arctic marine ecology, especially as to how marine animals relate to their physical environment; he was a major force in establishing both the Arctic Biological Station—now absorbed into the Department of Fisheries and Oceans—and the Devon Island Field Station in Canada's High Arctic; he has a long and distinguished record of cooperation with the Native peoples of the Canadian Arctic; he has trained more than 50 graduate students in various areas of arctic science, many of whom are now prominent scientists in both Canada and the U.S."

Professor Dunbar has published many papers in scientific journals. He is the editor of "Polar Oceans" and "Marine Distributions" and the author of "Eastern Arctic Waters," "Ecological Development in Polar Regions," and "Environment and Good Sense." A short article does not do the man nor his work justice. We can only hope that we have whetted your appetite to learn more about Max Dunbar and his important contributions to our knowledge of Canada's North.

Nutrients and Contaminants in Arctic Diets: the Dilemma for Inuit People

by Dr. Harriet V. Kuhnlein, Director
School of Dietetics and Human Nutrition

The quality of the environment has been a constant topic in the media during the last 12 to 18 months. At the same time a great deal of government attention has been focussed on studies of environmental quality. One project that has been the centre of newspaper and television attention in 1989 is a study of polychlorinated biphenyls (PCBs) and nutrients in the diets of Inuit residents of Broughton Island (Baffin Island).

From research conducted by Fisheries and Oceans Canada since the early 80s it has been known that Atlantic sea mammals and fish contain PCBs as well as other industrial contaminants (Wagemann and Muir, 1984; Wong, 1985). With good reason then, the leadership of Inuit organizations requested research that would define the risk to Inuit people from eating these foods. As a result, several staff members and students from the School of Dietetics and Human Nutrition have been involved in a project in the eastern Arctic sponsored by health agencies of the federal government and the government of the Northwest Territories. Indian Affairs and Northern Development Canada has also sponsored essential elements of the work. The results are close to being finalized and will be reported in scientific journals in the next several months.

The most disturbing aspects of this project have been universally expressed concerns that the traditional aboriginal food resources of Canada's Inuit people are now known to be contaminated with industrial by-products that may be present in large enough quantities so as to compromise the health of people who have these foods as regular daily items. Furthermore, these foods are recognized as nutritionally excellent—in fact, pioneering work on this was conducted in the late 1960s by Florence Farmer and Helen Neilson (1970, 1971), two individuals whose names are familiar to Macdonald alumni.

Native people across Canada, and throughout North America, have expressed their dismay at the multitude of social and biological forces that are causing a drastic decline in the quantities of traditional cultural foods used

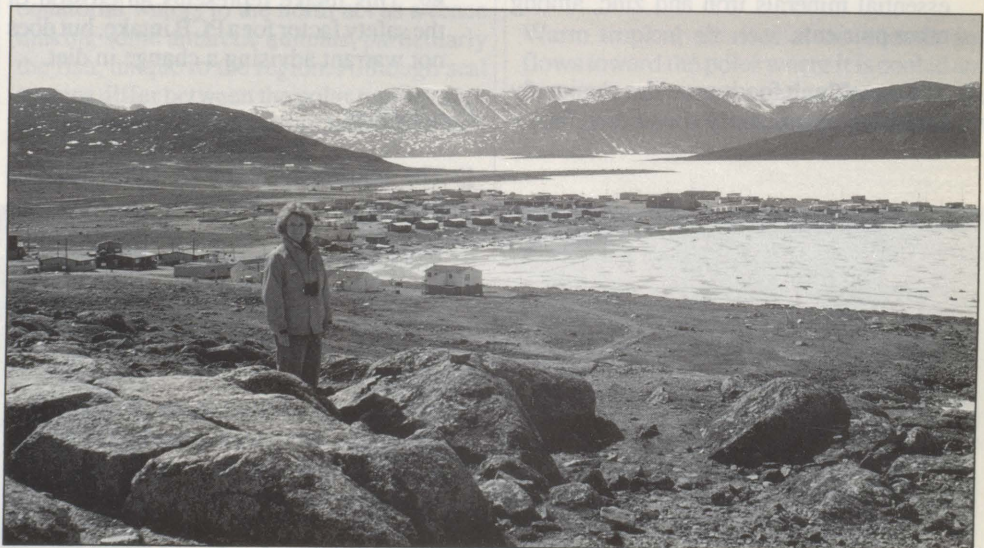
by their people. Native elders, in particular, strongly voice their concern that the younger generations are not following the traditional food (and other) cultural patterns, and as a consequence the health of the entire population is deteriorating.

The variety of factors contributing to this phenomenon are universal for native people, but the importance of any one particular factor may vary from group to group (Kuhnlein, 1989). For the Inuit people the important forces are: (1) demographic changes, such as increasing population; (2) reduced wildlife food species density within reasonable distance of population settlements; (3) employment, and the resulting concerns for time, money, and the human energy needed for traditional food harvesting; (4) availability of new (marketed) foods; and (5) acceptability of these new foods as a result of media, general education, and social contact. Will fear of industrial contaminants as promoted by the media be another important force in this list of why Inuit people are losing their traditional food practices?

PCBs have no known positive effects on the human body. In animal research studies toxicologists have shown that high doses have

caused various developmental defects and cancer in rats and mice (Fuller and Hobson, 1987). The deleterious effects of small amounts of PCBs in foods of humans are not known. Hence, a provisional human "tolerance" was set with a 200-fold safety factor from the dose known to cause effects in rats. This provisional "tolerance" has been accepted by the World Health Organization and Health and Welfare Canada as 1 microgram per kilogram (1 ug/kg) body weight for all age and gender groups. This "provisional tolerance" will be accepted until such a time as additional research will recommend otherwise.

Since about 1930 PCBs were used widely in several industries and are valuable industrially as an electrical coolant. Because of their persistence and accumulation in the environment (they do not biodegrade) their use has been restricted in North America since the late 1970s (Lauber, 1987). PCBs accumulate up the food chain and are present in all animal species, including humans. They accumulate with age, and males contain more than females because some PCBs are lost in pregnancy and lactation (Fuller and Hobson, 1987; Mes, 1987; Davies and Mes, 1987). Of all the world's aboriginal groups, the Inuit



Dr. Harriet Kuhnlein at Broughton Island, site of recent research.

Nutrients and Contaminants in Arctic Diets: The Dilemma for Inuit People

people are presumed to be highest on the food chain, but there have been no reports of PCB-related illness in any Arctic resident.

After a review of the research completed on nutrients and PCBs in the diets of Baffin Inuit, the following summary and recommendations were presented to the Legislative Assembly of the Northwest Territories in Yellowknife in April, 1989.

Nutritional Value of Inuit Foods

- 1) Inuit foods are nutritionally superior to the marketed foods used in the community.
- 2) Blubber, which has the highest levels of PCBs, is rich in at least one essential vitamin (retinol) and may be its major source in the diet. Blubber also contains high levels of omega-3 fatty acids, which are believed to provide protection against heart disease and other diseases, and to support other metabolic processes, such as the development of nerve tissue (particularly important *in utero* and during infancy).
- 3) Inuit food meats—from marine mammals, caribou, and char—provide large quantities of high quality protein, and the essential minerals iron and zinc, among other nutrients.
- 4) The use of Inuit foods provides a uniquely healthful, nutritionally sound diet; breast

feeding and breast milk convey enormous benefits to developing infants.

PCBs in Inuit Foods

- 1) Inuit foods are used by nearly all Broughton Island residents, and are a major part of the diet for the community. Only about 12 per cent of participants reported no consumption of Inuit foods during any of the survey periods.
- 2) All Inuit foods tested contain some PCBs: the smallest amounts are in plants and fish; higher amounts are in animals which feed on them; the largest amounts are found in sea mammal blubber (other than seals) and in polar bear fat.
- 3) More, and different proportions of Inuit foods, and more PCBs are consumed by older than by younger persons, and by males than by females. Marketed foods are used more by younger persons.
- 4) Over all survey periods, about 10 per cent of female participants and 15 per cent of male participants consumed more than the "tolerable" amounts of PCBs—1 microgram per kilo of body weight per day (1 ug/kg); the highest intake was about 4 ug/kg. This intake represents an erosion of the safety factor for a PCB intake, but does not warrant advising a change in diet.

Conclusions

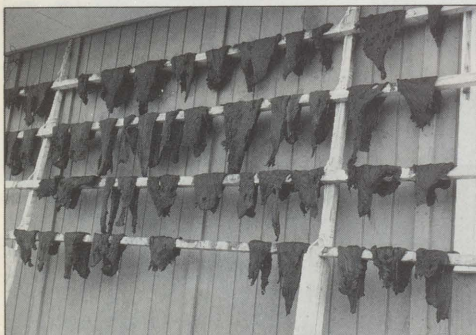
- 1) The nutritional value of Inuit foods is high.
- 2) Substitution of Inuit foods with marketed foods currently available and consumed in the community will result in a poorer diet, with the risk of damage to health.
- 3) The benefits of Inuit foods, and of breast feeding to Broughton Island residents are greater than the risk from the PCBs in Inuit food or in breast milk.
- 4) The use of Inuit foods, and breast feeding should be encouraged.

It is indeed unsettling that this message is complex: "Yes, there are PCBs in traditional Inuit foods, but continue to eat them because of their great nutritional and cultural value." The only good thing that could happen is that awareness of this research, and world-wide sympathy for the confusion of our Inuit people, will stimulate enough efforts in further research and education, as well as in the political sphere, to stop the release of the wide spectrum of industrial contaminants known to be released into the world's environments.

PCBs are only "the tip of the iceberg."

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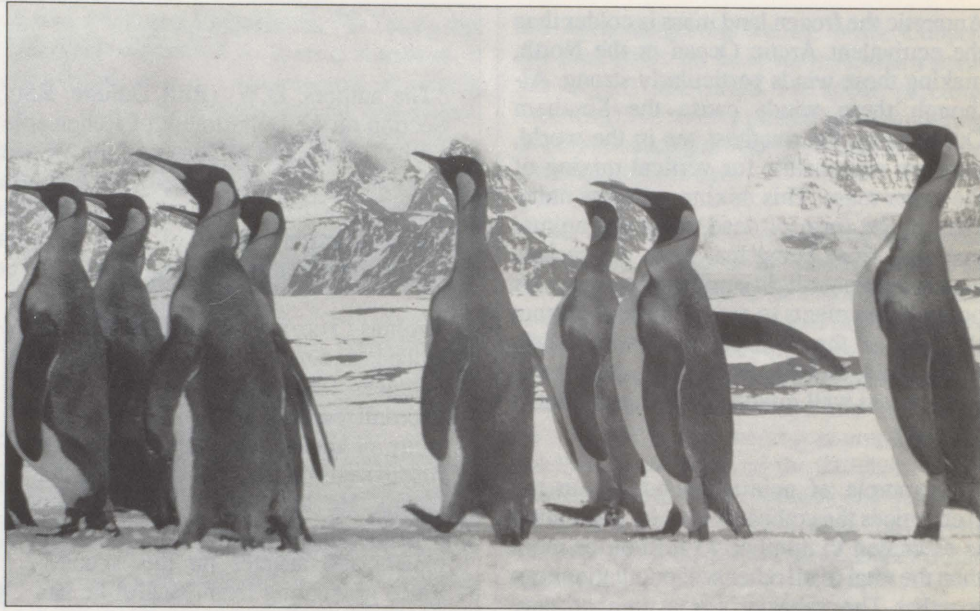
The use of Inuit foods such as dried narwhal meat should be encouraged.

Polar Contrasts

by D.W. Doidge and T.G. Smith*

The Arctic can be thought of as a doughnut; the hole in the middle representing the essentially land locked Arctic Ocean. The Antarctic is more like a cookie; a continent surrounded on all sides by the Southern Ocean. Both have arid cold climates but life has evolved differently because of differences in geography. The sea surrounding the Antarctic has prevented land mammals from colonizing it. Whereas species of rodents, foxes, bears, caribou, muskox, and man inhabit the Arctic, no land mammals were found in the Antarctic until recently when man and associated domestic animals arrived.

The seas in both regions are inhabited by species of seals, whales, and fish, as well as numerous seabirds. Several seal species are year-round residents and are specific to each region. The whales are summertime residents, migrating to warmer equatorial waters in winter. The arctic tern is a summertime resident of both regions. It never tastes winter as it commutes from summer in the North to summer in the South and back again. Blue, fin, sei, minke, sperm, right, and killer whales are found at the edge of the pack ice in summer, both north and south, and migrate towards the equator in winter. Since the seasons are reversed in the northern and southern hemispheres, these whale populations never meet. When one group is towards a pole, the other is wintering in the tropics. The bowhead, narwhal, and beluga are unique to the Arctic. The bowhead's cousin, the right whale occurs in both waters. The narwhal



Bill Doidge captured this delightful scene of penguins in South Georgia.

and beluga may have evolved when parts of the Arctic Ocean were cut off from other oceans during periods of glaciation. This isolation prevented escape from the icy seas so only those species able to adapt survived. No barriers prevented escape from Antarctic seas for marine mammals, but the warmer equatorial waters to the north act as a fence making some antarctic animals, particularly the fish, unique to the region. Although seal species differ between the polar regions they occupy similar ecological niches. Some feed

on fish. Others feed on small crustaceans. The "penguin" of the North, the great auk was a large flightless bird which was exterminated about 200 years ago. Its smaller cousins, the murres, which are common in the Arctic, "fly" underwater as penguins do with their flippers.

Warm tropical air rises at the equator and flows toward the poles where it is cooled and descends as strong winds. Turned by the Coriolis force it forms the westerlies. In the



One adult among many young. The adults can find their own offspring at feeding time.

The southern elephant seals are the largest seals in the world.



Antarctic the frozen land mass is colder than the equivalent Arctic Ocean in the North, making these winds particularly strong. Although these winds cause the Southern Ocean to be the roughest sea in the world, they are responsible for vertical mixing of the water mass. This mixing prevents nutrients, in the form of dead plant and animal material, from being lost from the surface waters where sunlight supplies the energy for ocean living plants to grow. These plants are the base of the food chain on which fish, birds, seals, and whales depend. Arctic waters are less well mixed and hence are nutrient poor.

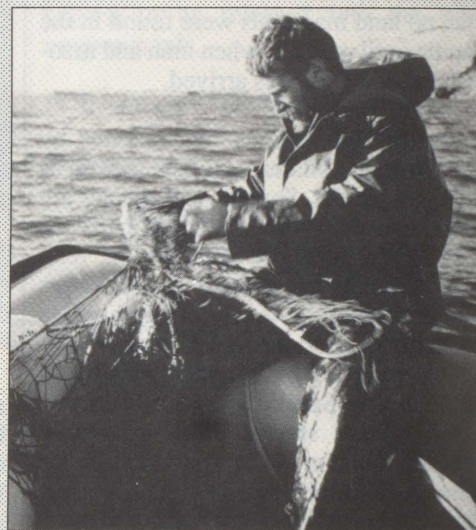
An example of animal abundance in the Antarctic is the crabeater seal. Its population is estimated to number 23 million or more than the total of all other seal populations put together. The crabeater's great numbers may in part be due to the abundance of antarctic krill, the small crustacean upon which it feeds. Antarctic krill is also the prey of blue whales. Since the demise of blue whales from over-harvesting, the "extra" krill available is thought to have led to increases in other krill predators such as the crabeater seal, the minke whale, some species of penguins, and the antarctic fur seal.

The lack of land predators such as polar bears and wolves in the Antarctic has made seals and other wildlife fearless of man. In the past this tameness has led to their death. On the other hand, it has surprised biologists used to working in the Arctic. There ringed seals are very shy and enter the water when they see man. When first encountering a crabeater seal pup in the Antarctic, one of us (Tom Smith) was surprised at its tameness. Surprised again when it bit into his pant leg! While studying fur seals at South Georgia, Bill Doidge was chased into the sea by a territorial and aggressive 300 lb (150 kg) antarctic fur seal bull. Luckily the seal decided to stay dry.

The exploitation of marine mammals led to many of the European geographical discoveries in both polar regions. For example, the Weddell Sea in the Antarctic is named

*The authors: D.W. (Bill) Doidge, BSc(Agr)'79, is a PhD student in the Wildlife Section of the Department of Renewable Resources and is studying under Dr. T.G. Smith, an adjunct professor in the Department. Bill worked at the Arctic Biological Station as a summer student and a contract employee. He also spent five years as a scientific officer with the British Antarctic Survey conducting studies of fur seals on the sub Antarctic Island of South Georgia. He has had experience working on many marine mammal species including large cetacean and Arctic and Antarctic pinnipeds.

Thomas (Tom) G. Smith was born in Quebec and received a PhD in Marine Sciences from McGill in 1971. His doctoral research, begun in 1967, was a study of the population dynamics of ringed seals on the east coast of Baffin Island. He has since produced two monographs and over 60 scientific papers and articles on this species. Since graduating from McGill he has worked at the Arctic Biological Station, Department of Fisheries and Oceans, as scientist in charge of arctic seal and small whale studies. His current programs are on beluga whales, walrus, bearded and ringed seals with other projects on arctic birds, foxes, and polar bears. He is an adjunct professor in the Department of Renewable Resources at Macdonald College.



Thomas G. Smith

In recent years, Dr. Smith has worked on Leopard seals in the Antarctic with the U.S. Antarctic Research Program and spent a year at the British Antarctic Survey in Cambridge, England. Since 1984 he has worked with the Norwegian Polarinstitut during the winter on ringed seals and fox studies in Svalbard. He is an honorary fellow of the Arctic Institute of North America and devotes the major part of his efforts to studies in polar regions.

after the American Sealing Captain James Weddell. (A seal species is named after him, but not the one he was hunting.) European discovery of Canada's Arctic was made first by whalers, to be later explored as a "short cut" to markets in the Far East.

The Antarctic treaty sets that region as an area not sovereign to any nation, and open

worldwide for scientific research. The Arctic lies in parts of Canada, the USA, the Soviet Union, Norway, and Greenland (Denmark). Petroleum and other resources have been discovered in both regions. Let's hope that after recent events such as the Valdez oil spill we will be even more careful with resource exploitation in these two relatively unspoiled regions at the ends of the earth.

Falcon Finding in Ungava Bay

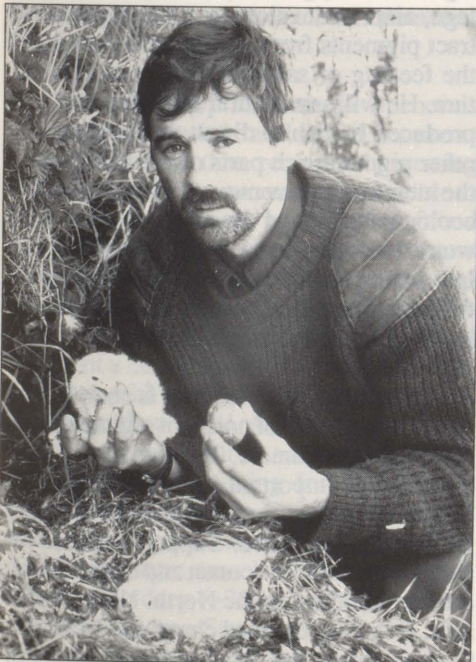
by Dr. David M. Bird

Director, Macdonald College Raptor Research Centre

My knuckles grew white as I clutched precariously to the thimble-sized chunk of rock. My feet slipping, I watched a long trail of loose gravel spill a hundred feet below into the Payne River (aptly named, if you know what I mean!). It was one of those scary times in life when a person couldn't go forward and certainly couldn't go back.

Since I am now writing this article, you know that I worked my way out of that predicament, but not without some help. In the end, all that risk went for nought because there were no falcons on that cliff in 1985.

My introduction to Ungava Bay came in 1980 when I was awarded a three-year grant from the World Wildlife Fund (Canada) to determine whether peregrine falcon populations were endangered in northern Quebec. Back in 1970, a survey of peregrines by two Americans in that region found severe egg-shell thinning and a serious reproductive decline.



Dr. David Bird on a survey of nesting falcon populations in Ungava Bay.

It was, of course, all part of the DDT story that has been recounted in myriad numbers of newspaper articles and television reports. In brief, DDT, an organochlorine, was developed as a pesticide to combat both malaria-bearing mosquitoes and various agricultural pests. In the 60s and 70s, significant declines in the populations of several birds of prey and other wildlife species were observed by scientists who, through various forms of detective work, indicted DDT as the major cause. Rachel Carson in her famous book entitled "Silent Spring" brought the matter to the forefront of public attention.

Although DDT was banned in North America in 1972, its half-life of 50 years and its ability to disperse through air, water, and almost all life forms have essentially made it an unwanted integral part of our lives today.

Peregrine falcons around the world are still trying to shake off its insidious effects, and conservationists around the world go on breeding them in captivity and releasing them into their former habitat. In North America both Canadian and American biologists agreed to conduct a survey of nesting peregrine falcon populations every five years beginning in 1970, hence my sojourns to Ungava Bay.

In most people's lifetimes you will meet a person or two into whose hands you would place your life. I have been fortunate enough to meet two such people connected with the northern falcon surveys.

The first was Jim Weaver, a red-haired muscular cross between Clint Eastwood and Chuck Norris (he is also shy enough to be embarrassed by this sort of description, but it's the truth). Having done so since his childhood, Jim can scramble over those Ungava cliffs like a monkey. More important, he seems to have this incredible ability to think things through quickly and come up with the right solution. I would feel safe anywhere in the world with him.

While Jim taught me most of my falcon lore for Ungava Bay, another man watched over

me on its dangerous waters. Willie Cooper, my Inuit guide for three surveys, was a small but rugged individual. He spoke precious little English, having picked up a smattering of phrases during the army occupation of that area many years ago.

Willie sure knew how to read the water! An overturned canoe in a sudden squall is basically a death sentence in the chilly waters of Ungava Bay. It's been said that numbness and death can overtake a person in a minute or two. Thanks to Willy, I never got to test out that hypothesis! Jim always told me that as long as Willie was smiling at you from his position at the stern of the freighter canoe everything was okay. On only one occasion when the waves in one large bay were threatening to capsize our canoe did I see that smile fade.

My particular study area in Ungava Bay includes the Koksoak River north of Kuujuaq or Fort Chimo as it was formerly called, Leaf Bay and its islands, the Gyrfalcon Islands, and occasionally, Payne River. When money is available, a survey by helicopter is delightful, if only because you are not held captive to the state of the water. The disadvantage, of course, is that you do not really get a feel for the land and its people.

Leaf Bay in particular is a beautifully harsh landscape. While trees are quite sporadic, the intense colouration of the soils and rocks contrasting with the rich blues of the skies and water can literally take your breath away from a cliff-top vantage point.

The native people who dwell in Leaf Bay settlement and to whom I owe much are understandably distrustful of Southerners in search of falcons for whatever reason. They've heard the somewhat erroneous reports of rich Arab sheiks who would pay hundreds of thousands of dollars for a single falcon! Each year I visit there, it becomes necessary to win their friendship all over again, a fact that pleases me for no other reason than knowing that they care about their falcons.

(turn to page 17)

Arctic Biological Station: Research for Effective Fisheries Management

by Dr. Christiane Hudon, Research Scientist, Marine Fish and Invertebrates of Northern Quebec, Arctic Biological Station, Department of Fisheries and Oceans, Ste. Anne de Bellevue, Quebec

The Canadian North is for many a powerful symbol of untapped wealth, still unscathed by the spectre of pollution and over exploitation. The development of northern resources is an effective means of asserting Canada's ownership of the North. In many northern villages, native Canadians look towards the exploitation of their lakes and rivers as a means to achieve employment and autonomy.

Northern Quebec benefits from a special status within the Canadian Arctic context, since it is covered by its own land claim agreement, implemented between the federal and provincial governments and the Cree and Inuit people inhabiting the territory. The James Bay and Northern Quebec Agreement (1975) was signed between the federal and provincial governments, Hydro Quebec, and the Cree, Naskapi and Inuit people to define the terms of development of the territories affected by hydro-electric development. Decisions concerning fisheries and other renewable resources management in northern Quebec are made by the Hunting, Fishing and Trapping Committee, on which native groups and various governmental ministries are represented. The committee seeks the advice of experts on different subjects before reaching a consensus.

The mandate of the federal Department of Fisheries and Oceans (DFO) in northern

Quebec deals with all aspects of the marine and estuarine life, from bacteria to marine mammals found from Rupert House (Southern James Bay) to Killinek (eastern tip of Ungava Bay). Most of the northern research in the Quebec Region is carried out from the Arctic Biological Station, which has achieved an international reputation through its years of existence. Projects of fundamental, applied, or management-oriented type of research are carried out in close collaboration with universities, native groups, and other public agencies. Specifically, several projects are carried out in collaboration with Dr. Fred Whoriskey, of the Department of Renewable Resources (see article in this issue) and Dr. Ben Simpson (Department of Food Science and Agricultural Chemistry) of Macdonald College.

Fundamental research on species biology is an important tool for a more effective fisheries management. For example, biological advice from DFO scientists is needed for the management of the striped shrimp (*Pandalus montagui*), of which large concentrations are found in Hudson Strait. Very little is known on the biology of that species, which is a "cousin" of the pink shrimp which you may know as the "Matane shrimp" (*Pandalus borealis*). We have recently investigated the biology of *P. montagui* in northern waters and showed that this species migrates daily between the bottom and the upper 50m of the water column in order to capture planktonic prey (copepods and other small crustaceans). This feeding migration has an important effect on the catchability of shrimp for the commercial fishery, since the animals cannot be effectively captured by bottom trawl at night, during their upward movements. In collaboration with DFO scientists from Newfoundland and Winnipeg, we are now studying how acoustic



Cree crew members Emie Hughboy and Phillip Kakabat untangle a gillnet on board the "Old Factory Islander."

methods (using a sonar-beam reflected on the fish targets) can be used to evaluate shrimp biomass throughout the water column without the limitations of the traditional biomass assessment with a trawl survey.

Our collaboration with Dr. Ben Simpson, from the Department of Food Science and Agricultural Chemistry of Macdonald College, aims at developing a technique to extract pigments from shrimp refuse to use in the feeding of salmonid fishes in aquaculture. He will use natural digestive enzymes produced by fish to digest the carapace and other pigment-rich parts of the shrimp after the meat has been removed. This approach is ecologically sound since it recycles what would be thrown away as detritus and turns it into a natural food additive for colouring the flesh of cultured salmonids, thereby increasing their appeal to the consumer.

The development of fisheries is complicated by the remoteness of northern regions and by their rigorous climate. The size of the territory creates important logistical problems: Ungava Bay alone is as large as the southern Gulf of St. Lawrence! Support services for ships, such as radio contact and Coast Guard, are less effective in the North. Navigational aids, including detailed charts and LORAN-C positioning, are unavailable in northern waters. Under such conditions, exploration of the territory for new fisheries can be very



The Wemindji Band members congregate to celebrate the christening of the 45-foot "Old Factory Islander."

challenging. Such surveys were conducted by Fisheries and Oceans in James Bay (1987-88) and in western Hudson Strait (1989) with the collaboration of native people of northern Quebec. It is hard to believe that the diversity of the fish and invertebrate fauna of these areas has not yet been entirely determined: our surveys of the marine waters of James Bay have shown the occurrence of five new species of fish (including the Atlantic herring) for that area.

Weather conditions and good luck can have a major impact on attempts to develop fisheries. There are countless stories of well-planned surveys in the North that failed miserably due to ice or bad weather. However, there are rare occasions when the reverse occurs. For example, when exploration for scallop started in northern Quebec, the vessel had anchored overnight off the village of Quaqtaq. When the wind caused the boat to drag its anchor, the crew threw the scallop dredge overboard to slow the ship's drift. The following morning the crew retrieved the dredge to find it full of scallops! They had unwittingly found one of the best scallop beds less than two kilometers from the village.

The case of scallop in northern Quebec is remarkable since it is a plentiful yet unexploited resource that requires harvesting technology and gear not readily accessible to Inuit people. Although scallops are found along the coast in relatively shallow waters (50m) it was unknown to native people and was not part of their subsistence food. The exploitation of scallop will require the use of vessels of a larger size (15m) than now used, equipped with powerful winches and specialized scallop dredges. This new technology obviously requires substantial investment as well as training for native crew members in fishing and navigation. Other resources, such as shrimp (*P. montagui*) require even larger vessels (>50m) since it is fished in the deep (>300m) offshore waters of eastern Hudson Strait.

Once a resource such as scallops or shrimp has been discovered distance plays an impor-

tant role in the economic viability of the new industry. How far can a fisherman travel and how much fuel must be spent to collect his product and still sell it at a price the consumer can afford? How much can the fisherman spend on fishing gear, spare parts for his motor, repairs on his boat and still break even by the end of the short three-month fishing season? Should the catch be sold in the North or be exported (at a high cost) to the more competitive southern markets? In the case of shrimp, the very high yields have attracted sufficient attention from "Southerners" to warrant the week-long trip necessary to fish northern waters. Sixteen permits were allocated last year to commercial vessels, three of which were for the joint use of Inuit from northern Quebec and Baffin Island.

The effects of the rigorous northern climate on the biological aspects of fisheries man-

agement cannot be overlooked. Virgin populations of fish and invertebrates in the north frequently exhibit a high biomass comprised mainly of large individuals. As harvesting occurs, the population becomes rapidly depleted and does not sustain the removal of large individuals since they grow slowly and require many years to attain sexual maturity in the cold northern climate. For instance, the blue mussel can take as many as eight years to reach its size of five cm in Hudson Strait, while it reaches that size after only two years in the warm waters of the southern Gulf of St. Lawrence.

The cold climate and the short duration of the growing season have an important role to play in the equation balancing stock exploitation and stability. In northern coastal regions we suspect that summers exhibiting particularly cold weather and heavy ice coverage (such as the 1989 summer) could reduce survival of young blue mussels and young of other species produced during that year. Fish species, such as the Atlantic cod, extend their range northerly during warmer years. This phenomenon explains the sudden abundance of cod off Killinek, generating brief seasonal fisheries that are unreliable from year to year.

The discovery of exploitable arctic populations can lead to deception when what appears to be an abundant resource is exploited without consideration of the dynamics of biological production in the North. Initially high yields from a northern fishery usually cannot be sustained for many years, ending in the collapse of the biological stock and the loss of investments. The examples that have been presented here are a shallow assessment of northern fisheries resources, but they provide an insight to the difficulties involved in their development. It is unlikely that northern fisheries will ever be the bonanza that many have anticipated. However, to many native communities in Canada's North, research and innovative management enhance their knowledge of their environment and are a step in the direction of autonomy, economic self reliance, and the preservation of a traditional lifestyle.



Exploration for shrimp in western Hudson Strait in collaboration with Makivik Corp., was carried out on board the "Kinguk" in August 1989.

Fish Studies in James Bay

Research for
Effective Fisheries Management

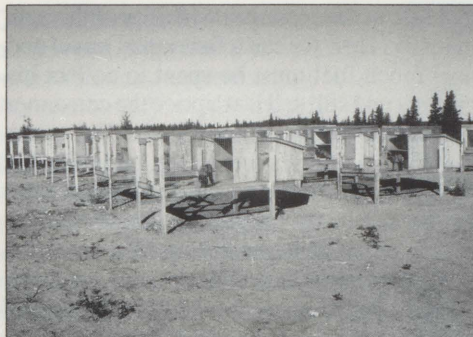
by Professor Fred G. Whoriskey

Wildlife Resources, Department of Renewable Resources

I am a fish biologist, and I cannot logically explain my interest in doing research in cold conditions. I hate the cold and commiserate with any animal suffering from its effects, especially when I have to swim after it in cold water to see what it is doing! It never ceases to amaze me how animals not only adapt but manage to thrive in conditions which my anthropomorphic (and anthropocentric) viewpoint tells me should have paralyzed them instead. From time I have spent in both the Antarctic and in the tundra zone of Quebec, I know how deadly an enemy cold can be. Somehow cold regions have a magnetic effect and draw people back. I have watched this attraction develop many times in other people. In an extreme case a graduate student from our department was sent North to conduct his research. He has been unhappy living anywhere else but in the North since. Part of the attraction is due to the singular beauty of these regions. Part of it may be an individual's desire to test his or her ability to measure up in difficult conditions. Part of it is a sense of adventure, and part of it is getting away from the hectic lives we now lead, and more particularly from the telephone.

Fish are an important resource for the peoples of the North. For the last three years we have been collaborating with Dr. Christiane Hudon of the Arctic Biological Station (see article this issue) to put field teams into the James Bay region to examine fish populations. Northern research is very expensive: everything from sewing needles to food to four wheel drive vehicles have to be flown into our base camps. To conduct our work we have been lucky to have the support of the Science Subvention Program of the Department of Fisheries and Oceans, the Department of Indian Affairs and Northern Development scholarships, and mostly Dr. Hudon's logistic and financial help through her exploratory fisheries budget.

Part of what we do is exploratory or aimed at understanding factors which control the ecological communities of the region. We are also examining the possibility of developing local fisheries for native peoples living in the James Bay area. To date we have conducted



Silver fox and lynx ranching has steadily developed in Wemindji (James Bay) since 1985. Photo courtesy Arctic Biological Station.

three main studies. Each was the principal responsibility of a graduate student working on a Master of Science degree in the Department of Renewable Resources.

Mr. Jean-Francois Doyon has worked on sea trout. These are brook trout that move from a home river out to sea for a few months of feeding, then return to the river. Salmon River, our study site, is located on the east coast of James Bay at the junction with Hudson Bay. Jean-Francois' home here was an insulated tent, and his only human companions were a couple of researchers and a Cree guide. All shared the same tent. The quarters were crowded, cool and damp. A strong cold wind is almost always blowing in from Hudson Bay. This site is accessible principally by helicopter and there is a polar bear denning area nearby. This means you take a rifle with you when you go for a walk.

We were interested in knowing how well the trout would grow in the cold conditions of northern Quebec. There is much interest in the possibility of using brook trout in aquaculture facilities, especially if cold resistant strains with good growth rates can be developed. Mr. Doyon found that the Salmon River fish had good growth rates, and his studies on the bioenergetics of fish movements will help us understand why these fish bother to move back and forth from fresh to salt water each year.



It is difficult to untangle frozen fish from a rigid net!

A little farther south, Mr. Bernard Morin has been working in Wemindji to help develop a fishery on rock cod for the Wemindji Cree band. Wemindji is a community of about a thousand people. Compared to Salmon River, logistics are simple. Air Creebec has daily flights in, weather permitting. The field team is comfortably quartered in a mobile home, and shops at the Bay.

The Wemindji Band Council is very actively pursuing projects that would create jobs for their people while at the same time relying on and preserving traditional Cree skills. This band has started a fox farm and is looking to local fish stocks as a possible source of fox food. Mr. Morin has been examining seasonal patterns of distribution and abundance of rock cod and the other fishes of the area to help provide the data that the Cree will need for planning fishing schedules. His work is also exploratory: we know very little about fish communities in the area. He has identified the presence of certain fish species that were not thought to occur in James Bay, and he has also had the courage to do quantitative field work in the winter. It is very difficult to fish in seawater at a temperature of -1.0°C and then take your gear out of the water into the -35°C air and try to untangle your frozen catch from a now rigid net.

Mr. Benoit Vanier is also working in Wemindji. His interests lie in how fishes of this arctic community compete for food. He has



The Salmon River Camp, on the eastern shore of James Bay at its junction with Hudson Bay.

been focussing on the sculpins, which dominate the fish community and which must, therefore, be playing a key role in determining how this ecosystem works. He is also helping us in a collaboration with Dr. Jeff Turner of the Department of Animal Science. This new project will determine if all the species of sculpins have protein antifreezes in their blood. These special proteins were first reported from Antarctic fishes and have now been isolated from other species

preventing them from growing. Fish having antifreezes are able to move into relatively rich feeding areas in either shallow waters or frazil ice during the winter, and thus presumably would have a feeding advantage over those species which do not have antifreezes.

The waters of Hudson and James bays have been poorly explored. Charts of the area are inaccurate and filled with question marks.

from very cold areas. Arctic seawater temperatures can fall to almost -2°C in winter, resulting in a "supercooling" of the resident fish. A supercooled fish is in great danger if it does not have antifreeze proteins. All it would take would be contact with an ice crystal to cause the whole fish to instantly freeze solid. The antifreeze proteins prevent freezing by attaching to ice molecules forming in the blood and

preventing them from growing. Fish having antifreezes are able to move into relatively rich feeding areas in either shallow waters or frazil ice during the winter, and thus presumably would have a feeding advantage over those species which do not have antifreezes. We know the fauna of this region even less well. We derive a great deal of satisfaction from the knowledge that our studies are contributing to our scant knowledge of this area. Our reward will come if the work leads to sustainable economic benefits for indigenous peoples and contribute to efforts to preserve these fragile ecosystems.

(continued from page 13)

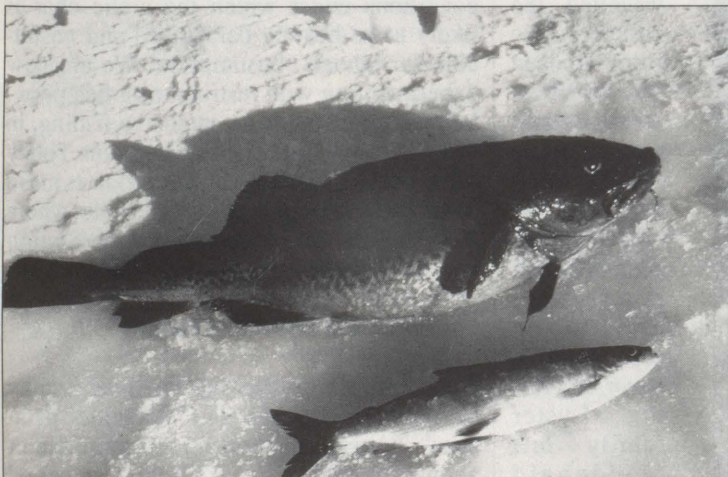
As for the peregrines, there's no winning their friendship. Two-legged visitors disturbing their quiet paradise are nothing more than predators to be greeted with as much noise and bravado by the circling parents as can be allowed for their own safety.

We usually travel to Ungava Bay in late July, so that the young are old enough to withstand our short visit and to have numbered aluminum bands placed on their legs. It is such a rewarding feeling to receive a card in the mail stating that the tiny male in the eyrie on Copper Cliff survived to fly as far south as Padre Island off the coast of Texas.

The last major survey was done in 1985. We found 19 falcon pairs with a total of 61 young, one of the highest reproductive rates ever recorded for peregrine falcons anywhere in the world! The three-year study from 1980 to 1982 showed a rather stable population as well, despite the growing number of native camps or "cottages" along the shorelines of major rivers.

If all goes well for funding in 1990 (and my wife hasn't read this article about the inherent dangers in Ungava Bay), I will once again be clinging to the cliffs overlooking the frigid waters of Leaf Bay, my heart stuck in my throat and the music of screaming peregrines reverberating in my ears.

(Epilogue: My trusted guide, Willie Cooper, will no longer accompany me on these Ungava sojourns because he died unexpectedly from eating some spoiled game a few years ago. But I will feel him watching over me and, I hope, always with a smile.)



Top, a rock cod; bottom, a white fish. These are two of the targets for fisheries development.

Northern Interests at Bay the Institute of Parasitology

by Dr. Mark A. Curtis,
Institute of Parasitology

Parasitology in the Arctic

The North is so often thought of as a frozen wasteland that it may be surprising to realize parasitic organisms commonly occur there. After all, aren't tropical places "where all the action is" in parasite disease? "Not so," is the answer from staff and students at the Institute of Parasitology (Faculty of Graduate Studies and Research) which is located on the Macdonald campus. Northern field studies are an important activity and with good reason. Polar explorers in the past paid with their lives for not knowing that they could get trichinellosis from the meat of polar bears or walrus. Even today, a northern tourist may experience the intestinal discomforts from parasite-induced local versions of "Montezuma's revenge," but beyond such obvious considerations as these lie fundamental questions which stimulate serious scientific interests in northern parasitology.

A Bit of History

Those involved in northern research at the Institute of Parasitology are carrying on a long tradition which began with its founder and first director, Thomas W.M. Cameron, who energetically promoted studies in the Canadian North. A fundamental belief in the

importance of northern work was evident in the original document calling for the establishment of our Institute, which aptly pointed out that "...the chief reason we know of so little applied parasitology in colder climates is that the North (meaning Canada in particular) has paid so little attention to it."

In attempting to redress this lack of knowledge about northern parasites, Cameron encouraged his academic staff and students to undertake surveys of northern parasites. From the 1930s onwards this meant that a number of our members travelled to various parts of the Canadian north, from the Yukon to Baffin Island, northern Quebec and Labrador. These early field workers travelled with the primary intention of studying parasites from Inuit and Indian communities, but little escaped their attention as they meticulously recorded the parasites of polar bears, seals and walrus, wolves and caribou, sled dogs and fish. Their attempts at systematically gathering parasite records were much enhanced through contacts with the northern health services and their affiliated hospitals, fisheries and wildlife officers, the Hudson Bay Company and the RCMP.

Included among our first northern researchers was a graduate student named Lynden Laird Lyster, who in 1939 travelled the eastern Arctic from Hudson Bay to Ellesmere Island aboard the R.M.S. *Nascopie* but the following year drowned in a canoeing accident on the Ottawa River. In 1972 the Lyster family left Macdonald College a memorial en-

dowment which enables the Institute of Parasitology to annually award a graduate student fellowship named in his honor, and some of our promising students are thus able to continue his legacy of northern work.

Northern Parasitology, Northern Ecology

Our more recent studies involving northern parasitology are usually ecologically oriented, dealing for instance with questions of why parasites happen to be so abundant in northern fish and animals living in some places and relatively rare in others. We have been intrigued by the observations from native people and fisheries officers that certain lakes are well known for containing "wormy fish," while other nearby lakes harbour fish that are practically free of the parasites. The parasites concerned are "fish tapeworms" (species of *Diphylllobothrium*), which aside from making the infected arctic char unappealing in appearance, are capable of infecting anyone who eats such fish undercooked or raw. Our research has discovered several reasons that very dramatic differences in tapeworm infections occur between lakes—reasons related to the feeding habits of the fish, which are, in turn, determined by the types of food available and the other competing fish species in the lake. Several years of field sampling on Baffin Island and in northern Quebec have enabled us to predict the conditions under which the arctic char is likely to be heavily parasitized and unsuitable for human consumption. We are now experimenting with restructuring fish populations, for example by intensive fishing, in order to control parasite transmission. Today such work is carried on with brook trout in small lakes located near Schefferville, where the McGill Subarctic Research Station provides excellent support facilities.

Parasites and Northern Health

Another recent project has involved a study in northern Quebec on "zoonotic parasites"—organisms transmitted from fish or animals to humans. Over a three-year period of working closely with the Inuit of two northern communities, Kuujuaq and Salluit



Dr. Mark Curtis taking field samples at Baffin Island.



The Eastern Arctic Scientific Resource Centre on the shore of Foxe Basin at Igloolik, N.W.T.

(Sagluc), we assessed the health risks associated with handling and consuming local wildlife and fish. This was done in large part by examining the Inuit subsistence harvest for parasites—everything ranging from the polar bear, seals and walrus to caribou and arctic char. Even local dogs didn't escape scrutiny. Northern hospitals provided samples for serodiagnosis, enabling us to relate field study results to actual records of exposure in local people admitted to the hospitals.

At times when dealing with wildlife we were frustrated by the difficulties of obtaining large enough numbers of samples, for it was important to sample the normal harvest of fish and wildlife without "encouraging" additional collections for science. Yet, at other times there was an overabundance of material—as, for example, when thousands of caribou were swept to their deaths over the waterfalls on the Caniapiscu River!

Most of all, we learned from our Inuit collaborators how their traditional knowledge served to help them avoid many zoonotic

diseases, and how their shared responsibilities for food selection and preparation were instrumental in this regard. Having such a system already in existence in the north means that risks of parasite infections can sometimes be reduced just by providing a community with recommendations compatible with its traditional lifestyle. Such recommendations are useless if overgeneralized—"Thoroughly cook everything before you eat."—but can be effective when made more specific—"Watch out for the igunac!" (Igunac is a fermented walrus delicacy implicated in northern Quebec outbreaks of trichinellosis.)

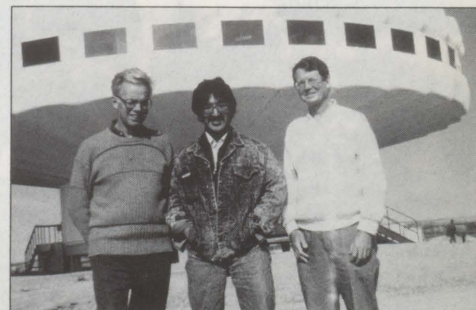
International Perspectives—the Copenhagen-McGill Exchange

International cooperation is important for advancement in northern science, and for Canadian academic groups our nearest neighbours, Greenland and Alaska, are obvious places to focus our attention. With this in mind, the Institute of Parasitology is an active participant within the new Circumpolar Network, an association

formed in 1987 between McGill, the University of Copenhagen, and the University of Alaska.

One of the first tangible outcomes of the Circumpolar Network has been a joint Copenhagen-McGill program in polar ecology, an event taking place this year which I am coordinating. The program, concentrating upon marine biological studies, has included a course in polar ecology given by me in Copenhagen during the winter term and a summer field trip to Igloolik, N.W.T. A total of 12 academics (three staff members, nine graduate students) from the University of Copenhagen accompanied me to Igloolik for field studies in June-July, when they carried out a variety of research projects on fish (and fish parasites, of course), marine plankton, and marine benthos (bottom invertebrates). Nearly all participants in the program had previous field experience in Greenland, and so the theme of the work was to make comparisons with ecological conditions in arctic Canada.

After further collaboration this winter to analyze and write up the Igloolik results, it will be the turn of McGill students to participate in field research and studies in Greenland during the summer of 1990. This will be based at the Arctic Station of the University of Copenhagen, situated at about 70°N (the same latitude as Igloolik) in Godhavn, West Greenland.



Drs. Petersen and Curtis with George Qulaut of the Igloolik lab.

Entomological Activities in Subarctic Quebec

by Professor David J. Lewis
Department of Entomology

Studies of insects by Macdonald College entomologists were initiated in subarctic Quebec in 1985. The two main projects involved (i) seasonal studies of the mosquitoes feeding on humans and (ii) the distribution of aquatic insects in subarctic peatlands. Certainly, one has to question the wisdom of an entomologist wishing to conduct mosquito studies in northern Canada!

The periods of insect activity in the subarctic are considerably shorter than those in southern Quebec. Therefore, it is not uncommon to begin one's field season with permafrost still in the ground and snow on the ground; as well, snow often reappears in mid to late August before conclusion of the field season.

Mosquitoes

Much of what we know about the mosquitoes of northern Canada has been generated as a result of the Canadian Northern Insect Survey initiated in 1947. Since then there have been rather general studies of mosquitoes, and ecological studies in specific Subarctic or High Arctic localities. Few studies have documented the seasonality and abundance of mosquitoes which feed on humans in the North.

In the summers of 1983 and 1984 a study of mosquitoes was conducted in and near Schefferville, Quebec. Adult mosquitoes were collected weekly from early June until late August. Five sites in or near the town were selected in which landing counts, biting counts, and aerial net collections of mosquitoes were made in succession.

Landing counts were obtained by counting the number of mosquitoes landing on a square blue cloth (0.09m^2) placed on a subject's lap during a 2-minute interval. Biting counts were the number of mosquitoes biting a subject's exposed, left forearm during a 2-minute interval (most of these were collected with the right hand). Aerial net collections were made with a standard insect net. At each site a standard procedure of 40 figure-eight sweeps were made about the collector. Consecutive counts and collections were made by one person.

Seven species of mosquitoes were collected; this number is intermediate between the two species recorded from the high Arctic and the 26 species known from the Granby region. Twice as many mosquitoes were collected in 1984 as in 1983, but the proportions of the various species were similar. A mosquito known to entomologists as *Aedes punctor* was the dominant mosquito, accounting for 78 per cent of the 711 bites and 90 per cent of the 3,629 mosquitoes obtained in net collections.

Landing counts were greatest during late July; counts at any one site were as high as 55/minute. These counts are higher than those obtained by other entomologists at Goose Bay (Labrador) and Whitehorse (Yukon Territory). Maximum biting

counts were obtained in early August; individual site counts were as high as 51/minute. These counts are higher than those obtained at Goose Bay, but lower than those recorded in Churchill (Manitoba). It is interesting to note that when biting rates by mosquitoes or blackflies exceed 3-5/min. at a Canadian Forces base, the entire site is sprayed with pesticide! The numbers of mosquitoes obtained in aerial net collections were greatest in late July; a maximum of 180 specimens were obtained in net collections at individual sites. Not too bad for about 50 seconds of work!

Aquatic Insects

Until relatively recently, the only wetlands which were really considered to be useful were those that could be converted into land for agriculture, industry, housing, transportation or waste disposal. However, wetlands have many values and natural functions, including water storage, water purification, provision of habitat for fish and wildlife, provision of recreational and educational opportunities, and provision of food, fibre, and fuel crops.

Wetlands occupy that portion of the landscape that is neither fully terrestrial nor fully aquatic. Technically, wetlands are areas where wet soils are prevalent, the water table is near or above the mineral soil for most of the growing season, and the dominant vegetation is adapted to wet environments. Peatlands occupy the largest area of wetlands in Canada, yet the inhabitants of same, especially the insects, are poorly known.

In 1985 studies were undertaken in a peatland habitat near Schefferville in order to identify the factors responsible for the distribution of aquatic insects in subarctic peatlands. The data generated from this study are also providing information on the diversity and density of aquatic insects in such habitats as well as their distribution in space and time.

The peatland habitat selected for study is a fen located on the Quebec-Labrador border near Schefferville, Quebec. It is about 1 km x



Dennis Murray and Stephane Bailleul collecting samples in a peatland near Schefferville.

100 m at an altitude of approximately 1700 m. On a weekly basis (June through August) two cubes of substratum (10 cm x 10 cm x 10 cm) were removed at random from each of 12 sampling sites. The substrate cubes consisted of peat and vegetation. The cubes were placed in individual plastic bags and returned to the laboratory (McGill Subarctic Research Station, Schefferville) as quickly as possible. The aquatic insects, and other invertebrates, were removed from the substrate cubes by means of wet extraction. Each cube was loosely teased apart and placed in a wire mesh tray suspended in the top of a plastic bucket which had been filled with water. A layer of heavy duty plastic secured over the top of the bucket prevented loss of organisms and evaporation; the mesh of the wire tray was sufficiently wide to permit insects to escape into the bucket from the substrate. Above the bucket a 100 watt light bulb was

illuminated for 24 hours. The bucket itself was placed in an ice bath. Essentially a temperature and oxygen gradient is set up within the bucket and organisms migrate from the substrate where the temperature is high and oxygen concentration is low toward the bottom of the bucket where the temperature is lower and the oxygen concentration is higher. Routine physical and chemical measurements were recorded at each site.

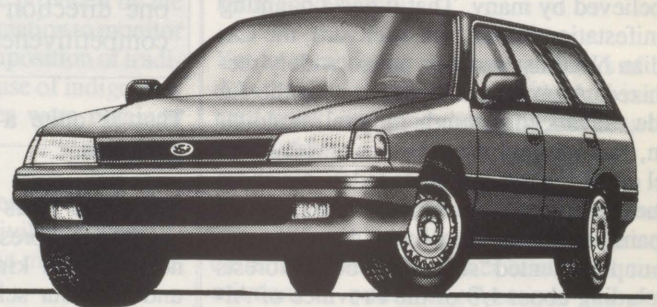
Approximately 4,000 organisms were collected in 1985, 2,100 in 1986, and 4,800 in 1987. Three groups of organisms accounted for over 84 per cent of the organisms collected: immature midges (48 per cent), freshwater worms (24 per cent) and immature sandflies (12 per cent). Other organisms collected included water mites, beetles, and immature horse and deer flies, crane flies, soldier flies, caddis flies, and dragon flies.

Seasonally, the numbers of organisms collected varied considerably; e.g., maximum numbers were recorded in late June in 1985 and late August in 1987. With respect to the spatial distribution of organisms within the fen, higher numbers of specimens were collected at sites which had more vegetation, less water, and less peat than at sites with opposite characteristics. Thus, the vegetation appears to influence the distribution of the aquatic invertebrates, but the "wetness" of the habitat and the amount of peat (and perhaps the rate of decomposition of same) also appear to be important.

In 1988 a second peatland habitat (a bog) was selected for study. Analysis of the data collected during the past two years continues, including comparisons between the data from the two types of peatland habitats.

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FOCUS Environment

Mastery for Service

by Professor T.C. Meredith*
Department of Geography, McGill University

Some clever linguist noted a structural parallel between the phrases "time flies like an arrow" and "fruit flies like a banana." There is a similar parallel between Macdonald's motto "Mastery for Service" and, say, "ring for service." In addition to the founders' intended ambiguity—masters normally do not serve—there is an ominous Orwellian perversion which makes it read "achieve mastery to receive service." In this age of technocrats leading institutional Juggernauts into environmentally and culturally murky waters, it pays to be clear.

"Sustainable development" and "economic competitiveness" are today's fashionable political phrases. Universities are lining up. Unfortunately, it remains to be shown that the former is not a clumsy oxymoron and the latter is not a "poison pill".

It is widely accepted that there is a global crisis of environment and "development". That it is related to institutional Juggernauts is believed by many. That it has a haunting manifestation in our own backyard, the Canadian North is, perhaps, not so widely recognized. A process that began with the fur trade, advanced through mineral exploitation, and reached an early peak with fossil fuel development continues today. Northern issues in today's newspapers relate to the expansion of James Bay hydro development, the unprecedented "sell-off" of boreal forests (including about 1/3 of the Province of Alberta), and the awarding of 90 per cent of northern natural gas to the United States. These, in themselves, are economic initiatives. But such initiatives do not exist in isolation. They are supported by science and technology, and through their ecological and social implications they become dominant variables in the environmental crisis. As a Canadian institution concerned with renewable resources, and as an institution living under the motto "Mastery for Service," the Macdonald community clearly has a contribution to make. The question is, where?

William Clark, in the recent special environmental issue of *Scientific American*, identifies three needs for a move to sustainable

development: more environmentally relevant data, more environmentally benign technology, and "an ability to reflect continually on the values and objectives that guide our efforts."

In an address to the graduating class at Amherst, J.K. Galbraith spoke of "institutional truths." These, bluntly, are lies, distortions, or errors perpetuated by those who benefit from them. His final sentence to them begins with a statement which evokes Macdonald's "Mastery for Service": "... in all life one should comfort the afflicted. . ." He then goes on: "but verily, also, one should afflict the comfortable, and especially when they are comfortably, contentedly, even happily wrong." One might well add, underscored, "destructively" to that list of conditions.

"As we move into the North, we trumpet 'sustainable development' in one direction and plead 'economic competitiveness' in the other."

That is quite a challenge for university graduates.

When 400 years ago Bacon articulated the changes that presaged our era, he spoke of a need for the kind of critical inquiry that underlies our science and, hence, technology. But he recognized this would not necessarily be an easy path: he spoke of Idols of the Tribe, errors in perception arising out of fundamental aspects of what we now call conventional wisdom—truths that don't need testing. "The human understanding, when any proposition has once been laid down, forces everything else to add fresh support and confirmation."

There are some who feel that addressing these barriers is the primary responsibility of the university. "The essential purpose of the university is not to carry out research, nor even, in the conventional understanding of the term, to teach, but to furnish a critical commentary upon the assumptions, beliefs,

values, knowledge and technologies that inform and support social order."

The spread of western culture was undertaken with enduring confidence, missionary zeal and perhaps even with sincere, good intentions (as Daniel Boorstin's assessment of the Spanish role in America suggests). And, because of the power of our science, technology, and economy, it spread with unprecedented success—perhaps the ultimate Juggernaut. Canada's attempts to "develop" the Canadian North is in this tradition. There can be no question that this spread led to great improvements in many aspects of the human condition. But, as is noted in the Brundtland Commission report "the same processes that have produced. . . gains have given rise to trends that the planet and its people cannot long bear." (WCED ES-2). This is the environmental crisis.

As we move into the North, we trumpet "sustainable development" in one direction and plead "economic competitiveness" in the other. But there is growing anger at the contrasts between the millennia long self-sufficient past of the northern people, the seductive promises of "development", and the often squalid reality that so many northerners find themselves in.

Our penchant for growth and our technical prowess make it seem inevitable that the MacKenzie Valley Pipeline will be built, that James Bay II will go ahead, and that the great boreal forests will be pulped and will follow the Amazon. The possible impacts of gas development and transport in the Arctic are known from Berger's prescient *Northern Frontier, Northern Homeland*. It is little wonder environmentalists and native groups are disturbed at the gas export decision. The impact of hydro power development on the Cree environment is evident. It is no wonder there is a demand for public hearings (and perhaps no wonder there is government resistance). And while the possible ecological consequences of widespread logging and bleached pulp production in boreal forests

(continued on page 23)

Issues in Human Nutrition

The True North Strong and....?



by Linda Jacobs Starkey, University Coordinator
Professional Practice (Stage) in Dietetics, School of Dietetics and Human Nutrition

Sometimes we seek change, sometimes we simply find it. When Pam Fawcett Edger graduated from the Dietetics Major in 1986,

she and her husband Norm aspired to a fantastic work experience in Frobisher Bay. Norm, a dentist, would be able to describe and treat the oral health state of the population and Pam, a dietitian, would springboard corollary nutrition programs. And this health promotion dream in a warm, receptive community! What a wonderful cultural and professional opportunity! And what idealism. That was four years ago and much in the North has changed. Then, the big concerns were dental caries, alcoholism, and overweight: serious health matters but not media-grabbing headlines. Now it's a different world; a lot has changed, and the health stakes are higher. A new nutrition team is studying the traditional food supply of the Dene people to assess a potential nutrition-toxicology relationship. So much for our vision of the pristine North.

(from page 22)

can be estimated from the impact in southern areas, the cultural impacts of massive forest clearance and river pollution can only be guessed at. Again, it is little wonder that there is concern.

The drive for "sustainability" is a challenge that, by definition, must be met. It could be that our age requires the most innovative and dramatic solutions ever, and that the university community carries an unprecedented burden of responsibility. But if universities are to meet their leadership responsibilities they cannot languish in potentially destructive "institutional truths." Rather they must challenge real problems, even if—especially if—they arise out of errors based on "Idols of the Tribe." In Downey's terms, the task involves, above all, **critical commentary**. Is he suggesting there is too much complacent acquiescence or, worse, unwitting complic-

In the summer of 1988 Donna Duncan, a Masters candidate in the School of Dietetics and Human Nutrition, travelled to Fort Good Hope / Colville Lake for a startling nutrition education experience. Donna, a graduate student with Dr. Harriet Kuhnlein, met a political health education/promotion situation. Her mandate is to be able to "extrapolate the risk of toxin intake during seasons of maximum use of traditional food resources."¹ Toxaphene and PCBs have replaced sugar as potential culprits to a population's health—and opened a new story for a people and the media.

Liaison with community leaders and the band council, coupled with links to federal and territorial medical services personnel, provided the permission for the research. Donna met with bilingual field workers (bilingual here means Slavey dialect and English!) to develop her community outreach team. Having trained these women in the techniques for collecting dietary intake data, Donna settled into an office provided by the Hunters and Trappers Association to monitor the incoming results—composition of traditional diets and patterns of use of indigenous foods. Actual food samples were obtained

ity? The Juggernauts are headed North, and we, the members of this privileged community, are, comfortably, at the master's table.

"Mastery for Service" is a powerful charge. But it begs the questions "mastery of what?", "service to whom?" A small service to the right master is of more use than a great service to the wrong. If the greatest urgency is in the slaying of idols, so be it. Because, whatever they say about fruit flies, time does fly like an arrow.

*Dr. Meredith supervises environmental studies programs, has worked with Inuit and Indian communities in northern Quebec on caribou management studies, and is involved in rural resource conservation studies.

with the assistance of local hunters and the Renewable Resources Officer.

The real work was yet to begin! Now to the lab to turn food consumption data into nutrient intake and

to transform foods like moose blood, burbot liver, and cisco fish into mineral analyses, retinol, and fatty acid assays and proximate analysis results. Laboratories in Winnipeg and Ottawa as well as the Department of Animal Science augment the new research facilities in the School of Dietetics and Human Nutrition to provide staff and resources to begin to unravel the question of effects of industrial contaminants on the Dene food supply.

Yet to come is the computer analysis of the data that have been generated, then the really hard work, studying the study and drawing conclusions.

This fall Donna has been pondering her learning experience—political wisdom gained, cultural exchange, and her confirmed commitment to nutrition education. For even without her thesis conclusion, Donna has personally concluded that northern-based community nutritionists have a vital role in the North—to link toxicology, nutrition, and the media to a comprehensive nutrition information/education program for the Dene nation. For if they know what researchers know / don't know / hope to know, messages to the community can help to restore confidence in Dene traditional foods.

¹Kuhnlein, H.V. 1989. Food composition and dietary evaluation for nutrients and environmental contaminants in Mackenzie zone. Research project proposal, Health and Welfare Canada (personal communication of author).



Donna Duncan

Notable Events

Thailand Princess Visits Macdonald College

On May 17, 1989, Her Royal Highness Princess Chulabhorn of Thailand gave a seminar at Macdonald College on "Approaches to Environmental Protection in Thailand: the Need for Sustainable Development." The Princess, who has a PhD in organic chemistry from Mahidol University in Thailand, was in Canada in connection with the Fourth World Congress of the Heritage Trust in Toronto. She is the Honorary President of this organization, which promotes appreciation of architecture and natural beauty and encourages conservation. During her trip to Canada she visited several universities and industrial research laboratories.

The youngest daughter of Their Majesties King Bhumibol and Queen Sirikit of Thailand, Her Royal Highness is a chemist and Director of the Chulabhorn Research Institute (CRI) in Thailand. In 1986 she was awarded the Einstein Gold Medal by UNESCO. Her particular interests include the scientific investigation of medicinal plants, the adaptation of modern technology to rural areas, environmental toxicity, and primary health care and nutrition.

In her seminar Her Royal Highness pointed out that Thailand is facing a number of emerging environmental problems. The

country's abundant natural resources have provided the raw materials for impressive economic growth over the past three decades. There has been an eighteen fold increase in GNP and a ten fold increase in GNP per capita. Thailand's growth appears likely to remain based on agriculture and natural resources.

Unfortunately, the Princess pointed out, the economic expansion has often been based on the exploitation of natural resources and the environment. A startling 70 per cent of the increase in agricultural production over the last 30 years has been attributed to the expansion of crop areas alone. Demands for land and wood products have reduced the forest areas by 60 per cent of the total land area in 1960 to around 25 per cent today. The lower Chao Phaya River, the main river of the country, is said to be dying with large stretches threatened by deoxygenation due to overload from industrial and domestic organic wastes.

With growing public awareness and concern on the use of natural resources, nature conservation and environmental protection, Her Royal Highness said that a number of non governmental organizations and programs have been established. There are a number of

Royal Initiated Projects of Their Majesties the King and Queen of Thailand who travel extensively throughout the country. These visits have led to the establishment of over 1,000 royal and royally initiated projects.

In Thailand the government has recently declared that the forest areas for conservation,

including national parks, wildlife sanctuaries and watershed areas should cover 17.6 per cent of the country's total areas, while economic forest areas should cover no less than 25 per cent. "Deforestation is one of our major environmental problems," Her Royal Highness said, and it has mostly been caused by appropriation of the land for slash-and-burn farming. The problem arises from peoples' poverty and lack of understanding. The Princess quoted from His Majesty: "reforestation can loosely be defined as being the provision of timber trees, fruit trees and trees for charcoal. However, the important thing is that in order to preserve water sources and streams it doesn't matter whether it is a forest of fruit trees or a forest of trees for charcoal, just let there be a forest of trees which fulfil their role as a natural resource capable of giving benefit to the population...."

Her Majesty the Queen set up in 1982 a project called "Pah-Rak-Nam" which means "Forest Loves Water." The slash-and-burn farming method can be solved only by explaining to villagers the devastating results of that farming method and by introducing a new profession which can bring the same or greater income to the families. In 1982 the first tree in a new forestry program was planted by the Queen in the area of the "Poo Pha Lek" mountain next to the reservoir in "Tham Tiew" village in the province of Sakon Nakorn. More than 50,000 people from neighbouring villages gathered for the ceremony. The young forest was to be looked after by the local people; in return, Her Majesty paid them a monthly salary. The Queen also rented barren land nearby to include in the Pah-Rak-Nam forest. This project has been extended to other villages, and the Queen has rented more land.

In 1983 the Queen extended the project to include community development by establishing a village in the Pah-Rak-Nam forest. Starting with nine families, each family was given a small house, a piece of land, a granary, two cows and a cow shed, an oxcart, and 50 chickens. There was also a greenhouse, a well, a rain water storage tank, and a weaving



Her Royal Highness Princess Chulabhorn of Thailand being escorted to the seminar room by Vice-Principal Roger Buckland. Photo by H. Cohen Rimmer.

loom; this in return for planting young trees and looking after the forest. Training courses in handicrafts: ceramics, silk weaving, wood carving, and so on were also provided as was an elementary school to provide the young children with an education. The "Pah-Rak-Nam" project has proven to be successful and has been adopted by the CRI in carrying out the implementation of the program on Restoration and Integrated Development of the Flood Affected Area in Southern Thailand.

Agriculture and Food Production

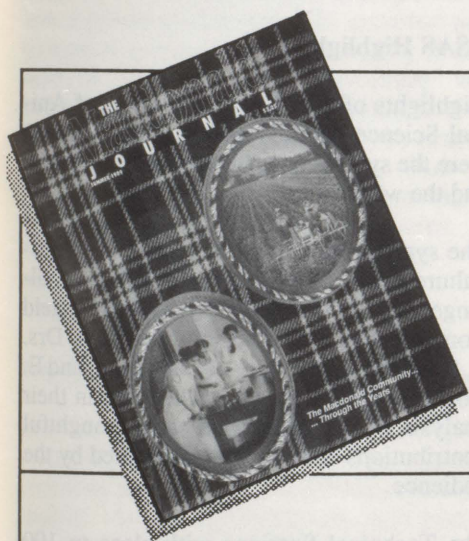
The King of Thailand has taken a keen interest in the increase of food production, including improving the quality of seed and young plants. New strains of rice and other plants with resistance to bacteria and fungi

are being produced by genetic engineering techniques and tissue culture. The reclamation of agricultural land from swamps is being encouraged, as is increasing food production by utilizing unused land and the introduction of new crops such as apples, peaches, strawberries, wheat, barley, and other cereals and grains.

In the southern part of Thailand, terrace rice planting has been introduced in order to increase rice production. In the northeastern part of the country, protein-deficiency has been a great health problem. To help solve this, fish culture has been encouraged. The King has also stocked the reservoirs all over Thailand with different kinds of fast-growing fish and other fresh water species as a protein source for the population.

Social Development

Her Royal Highness told of another interesting project initiated by the Queen: the establishment in 1976 of the SUPPORT Foundation for the Promotion of Supplementary Occupations for Villagers. Agriculture depends on climatic conditions which are variable; handicrafts are independent of climatic conditions. There are several training centres in and outside of Bangkok and the trainees are selected from very poor families from different parts of the country. They are trained in such fields as: silk, cotton, or reed mat weaving, bamboo basketry, silver and gold craft, wood carving, Thai traditional painting, sculpturing, ceramics, artificial flower making, rattan furniture, and engraving of animal hides for shadow plays.



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Notable Events

AIC Conference Hosted by Faculty of Agriculture

The theme of the 69th Annual Conference of the Agricultural Institute of Canada, which was held at McGill University and hosted by Macdonald College, was "International Trade and Development." Three noted speakers addressed the theme, the first being Douglas Lindores, Senior Vice-President of the Canadian International Development Agency (CIDA). Looking at the positive side, he pointed out that life expectancy in the developing world has increased by 19 years in the past four decades. In the same period, the percentage of children attending elementary school has increased from 60 to 80 per cent. Yet, 38,000 children die each day from preventable diseases and one billion of the world's people are malnourished. He said that six million hectares turn to sand every year. That is an area roughly the size of Nova Scotia. The world's forests are vanishing at the same rate. While pointing out the challenges in doing so, he emphasized the importance of developing programs promoting sustainable agriculture.

Professor Alex McCalla, of the University of California, Davis, described the changing patterns in world trade and the impact of these changes on Canada. Using grains as an example, he pointed out how the flow of exports has changed since the second world war. The USSR, formerly an exporter, is now a major importer. Western Europe, once a major importer, is now the world's third largest exporter. North Africa, the Middle East, and the developing countries of Asia are importing large quantities of grain. Now, a quarter of Africa's food supply is imported and the proportion is expected to grow to half by the end of the century.

Michel Petit, Director of Agricultural and Rural Development of the World Bank in Washington, D.C., noted that economic growth and growth in international trade go hand in hand although it is not clear which is cause and which is effect.

The consensus among the speakers was that the developed and developing worlds are increasingly interdependent, and Canada's future as an exporting nation will be affected

to a large extent by what takes place in the developing world.

A resolution passed unanimously by the annual meeting of the AIC calls on the government to execute a binding joint diplomatic note with the U.S. guaranteeing that the Canada-U.S. Trade Agreement applies only to bottled water. Since several major water diversion schemes are currently in the planning stages, the meeting passed a further resolution calling on provincial governments to place a moratorium on water exports until the issue is addressed by the Canadian and U.S. governments. Institute members are concerned with the possibility for large scale water diversions due to the enormous impact they would have on the long-term sustainability of Canadian agriculture.

The accompanying photos and short items give only a taste of the excellent Conference that was held in Montreal last July. As Chairman of the AIC Planning Committee Professor Norman Lawson, of the Department of Plant Science said, "many people have pointed out that this AIC set a new high that may be hard to meet in the years to come". Professor Lawson was named a Vice-president of the AIC at this year's Conference.

Successful and Satisfying

Five years of planning came to fruition this past summer when the 1989 Agricultural Institute of Canada Conference was held at McGill University July 9 - 13. The Conference was largely organized by staff of Macdonald College.

The Conference included the business meetings and plenary session of the Institute, as well as the technical sessions and symposia of 10 scientific societies. In all 960 people attended the various sessions, along with approximately 200 spouses and children. All scientific sessions were held at McGill University, while social events took place at various locations throughout Montreal and the surrounding area.

The feed-back that we have had from the

Conference has almost all been positive. Most delegates were very satisfied with the excellent scientific content of the sessions that they attended and appreciated the organizational efforts that we had put into the Conference. The social activities were enjoyed by all, with the Monday night barbecue at Macdonald College warranting special mention.

The AIC Conference required a considerable input of time and effort by the organizing committee. All's well that ends well! I believe that the success of the Conference has given us all a great deal of satisfaction. We may even be ready for another one, say, in the year 2001!

Professor Bruce Coulman
Co-Chairman, AIC Conference Committee

CSAS Highlights

Highlights of the Canadian Society of Animal Science (CSAS) 39th Annual Meeting were the symposium, the technical sessions, and the workshops.

The symposium on Animal and Crop Agriculture in Development presented the challenges and opportunities existing in this field from a technical and social dimension. Drs. E. Bradford (University of California) and E. Donefer (McGill) were outstanding in their analysis of the theme and their thoughtful contributions were much appreciated by the audience.

The Technical Sessions with close to 100 presentations outlined the rich and diverse interest in the research programs of Canadian animal scientists.

Workshops on international development and animal genetics closed the four-day event with exciting debates on the do's and don'ts in development work and on the implications of biotechnology on the ethical, moral, and legal fabrics of society.

H. Garino,
Chairman, CSAS'89

CAEFMS Report

During its 13 sessions the Canadian Agricultural Economics and Farm Management Society (CAEFMS) offered 22 invited and 30 contributed papers. Most of the program was closely related to the AIC theme of "International Trade and Development." As commented by many of its 90 paid registrants, this was one of the fullest programs in the recent history of the society.

Several interesting symposia such as Progress and Prospects in GATT Negotiations, Old and New Approaches to Development, Rural Restructuring in Canada, and Mid-Year Market Outlook were well attended. A new session called "Open Forum on Development Through Trade: Theory and Reality" featured very lively debate among leading international economists. The audience participation was especially stimulating. A session on "Free Trade in Horticulture" was organized jointly with the Canadian Society for Horticultural Science. Held in the elegant surroundings of the University Club of Montreal, the Awards Banquet was an enjoyable, entertaining and memorable event.

Kisan Gunjal
Chairman, CAEFMS '89

Successful 16th CCAA

For the Canadian Consulting Agrologists Association Tuesday was "the" day with the morning devoted to presentations of information directly affecting the agricultural consultants' operations. Outstanding presentations were given by Byron Beeler of Ciba-Geigy, Frank Frazier of the American Society of Agriculture Consultants (ASAC), Dr. John McGowan, Agriculture Canada, and Paul Muller, Inmarint. The afternoon was devoted to the issues of free trade and GATT as it may affect our members in the future. We had an outstanding panel of speakers and the sessions were well attended.

The President's luncheon held in the McGill Faculty Club featured Frank Frazier, Executive Vice-President of ASAC, who spoke on

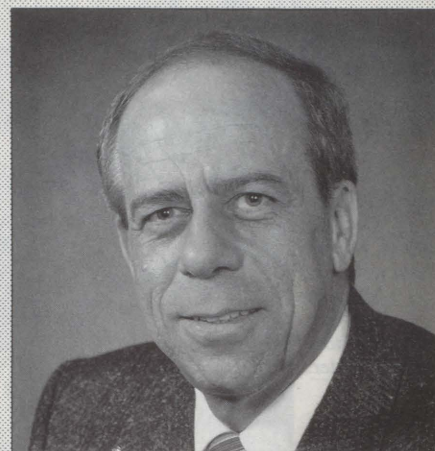
"U.S. Consultants' View of Free Trade." This excellent dissertation led logically into the afternoon program dealing with the broader view.

The day wound up with a beautiful evening reception, banquet, and dance. Theresa Greene of Macdonald College received appropriate appreciation from her peers for the outstanding help she provided in acting as our liaison with the Montreal convention committee and for making things happen at the Conference.

Frank Payne
CCAA Secretary-Manager

Canadian Pest Management Society

The Canadian Pest Management Society's annual meeting was organized by this year's President, Dr. Stuart B. Hill of the Department of Entomology, and the Secretary-Treasurer, Mr. John Scott of the Pesticides Directorate of Agriculture Canada. It included a symposium on International Pest Management, a banquet speech by Dr. Michael Lovinsohn of IDRC on "Regulating Pesticide Hazards in the Absence of Legislation," sessions on Design and Management for Pest Control, Biopesticides, Pesticide Regulation and Management and Recent Finds in Pest Control, and a joint symposium



The Canada Farm Business Management Prize for Excellence was presented to Paul Sauvé for his outstanding leadership in developing extension programs in farm management in Quebec. During the last 27 years Paul Sauvé has been an extension agrologist with la Coopérative Agricole de Coaticook, a farm credit advisor for the Farm Credit Corporation in St-Hyacinthe, and a regional director of the Ministère de l'Agriculture, Pêcheries et Alimentation du Québec. Paul Sauvé created the farm management publication "Gestion et technologie agricoles," and the information club HERSOL for all those interested in soil conservation. He has recently set up a second club AGROVIE for those interested in low input sustainable agriculture.

with the Canadian Phytopathological Society on Biological Control.

Macdonald's Department of Entomology was well represented with 11 presentations by staff and students. The session on Pesticide Regulation proved to be the most popular, probably because the regulatory process is currently under review. The proceedings of the Conference will soon be available.

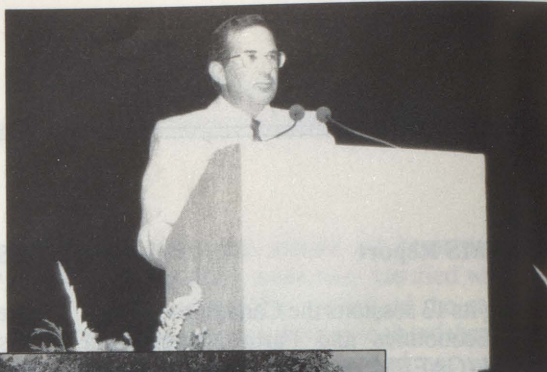
Dr. Stuart B. Hill
President, CPMS

Photos by Helen Cohen Rimmer



Among those enjoying the wine and cheese reception were Don Hoover, Jim Webster, and Norman Lawson.

Guy Jacob, Deputy Minister, MAPAQ, welcomes the delegates to Quebec.



Plenary speakers Douglas Lindores, Michel Petit, and Alex McCalla receiving paintings from Jim Webster.



Back on campus for the barbecue: Heather and Galen Driver.



Russ Freed, in from the U.S., with Victoria Stewart.

The barbecue held at Macdonald was a great success.



Ralph and Doreen Estey welcome Bob Forshaw to Mac.



Calvin Chong catches up on the travel news of Howard Stepler.



Bob Bradley, Ruth Rose, Byron Beeler, Bob Hamilton, Dan Rose, and Faye Bradley share a picnic table.

Ray and Betty Scovil, Jim Nicholson, and Herb MacRae at the entrance to the Centennial Centre.





Recent grads
back at Mac:
Leonie Nadeau
and Fred Sedun.

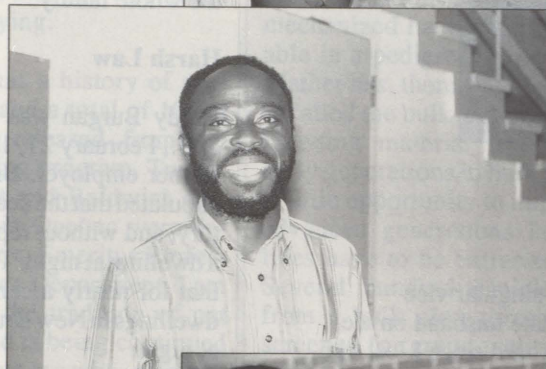
Catching up on
news - Michael
Trueblood, Ralph
Ashmeade, Cathy
Lowrie, Bob
Plank, and Randy
Goodfellow.



Welcome to
Macdonald:
Arthur and
Kathleen Neeham,
Reda Shahin,
Ruth Broughton,
Samir Abouloos,
Trinkie Coffin,
and Matthew
Valk.



Sam Asiedu is
now teaching at
NSAC.



Discussing AIC
with Yvan
Jacques, centre,
are Bryan
Harvey and Al
Slinkard.

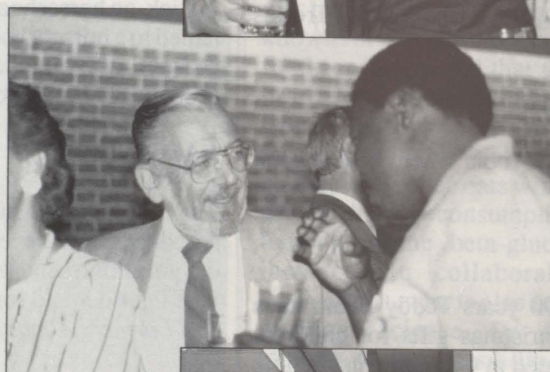
Bruce Coulman
and Marcel
Couture take a
moment to relax.



Harold Klinck
accepting award
from Al
Slinkard.



Jean David,
centre, was made
an Honorary
Life Member of
the Canadian
Society for
Horticultural
Science.

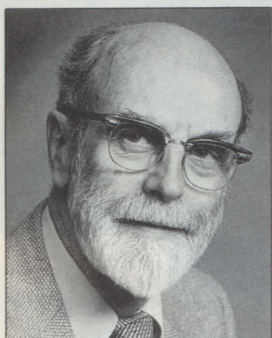


Dean Roger
Buckland, right,
welcomes Byron
Beeler back to
Macdonald.

Welcome to
AIC:
International
group and
sponsors pose
for a photo.



Fun Fact Fable Fiction



by Ralph H. Estey
Emeritus Professor, Department of Plant Science

Cold Comfort

A widow whose singular vice was to keep her late husband on ice, said, "It's been hard since I lost him I'll never defrost him!"

Cold comfort, but cheap at the price."

Dog's Orders

The common expression, "Sick'm," used when ordering a dog to attack, is thought to be a contraction of "seek him" or "seek 'em." At the time of Shakespeare, and before, the term used for that purpose was "tarre." Shakespeare used it that way in at least three of his plays: King John, Hamlet, and Troilus and Cressida.

Language Bloopers

Quiet man seeks a room where he can cook himself.

Teddy Bears

For more than 90 years Teddy Bears have been popular Christmas gifts for children. They were invented in Germany just in time to be displayed at the 1903 International Toy Fair. An American ordered several thousand and when they reached the United States an enterprising salesman sent several of them to a wedding reception for the daughter of Theodore Roosevelt, the President of the United States who was popularly known as Teddy. The President and his guests liked the little toy bears and it wasn't long before they were being referred to as Teddy Bears. The original German-made bears are now rare, and highly valued, collectors' items.

Typographical Error

Visit our clothing department. We can outwit the whole family.

Harsh Law

Paddy Burgan was hanged in Saint John, N.B., February 21, 1828, for stealing from a former employer. British law, at that time, stipulated that the death sentence was mandatory, and without reprieve, for stealing from a dwelling at night. That law was so effective that for nearly a century the doors of most dwellings in New Brunswick were not locked at night.

Old Humour

"What was your best act as a magician?"

"Sawing a woman in half."

"Do you have a family?"

"Only a half sister."

Nails Not Needed

A stick-on horseshoe that does not need to be nailed to a horse's hoof is now being made by Mustard of Switzerland, the world's largest producer of horseshoe nails.

He Won't Pay

The following is a man's reply to a bill from a bookstore: "I never ordered the book; if I did you didn't send it; if you sent it I never got it; if I got it I paid for it; if I didn't, I won't." *Old Farmers Almanac*, 1891.

Dixie

The word "Dixieland," used with reference to the state of Louisiana, was derived from a 10-dollar bill printed in French and English, which had the French word for 10, "DIX," inscribed in large letters.

Pronunciation

Some people pronounce Uranus as "urine us", while others say "yer anus". Personally,

I prefer the anal rather than the urinary pronunciation.

Too Far Out

The expression "beyond the pale" comes from the Latin palus, meaning stake, thus implying a place enclosed by stakes or a fence. When used figuratively "beyond the pale" means going beyond some boundary, restriction, or generally accepted limits.

Black Battalion

During much of the first world war Canada had a battalion of black men. The unit was organized in 1916 and disbanded in 1920.

Valuable Resource

Our pioneers who had to carry water by the bucketful used only about 25 litres of water per day. Canadians now use, on average, more than 4,000 litres per day. That includes the enormous amount of water used by steel mills and power plants for cooling purposes, and the water used by many other industries.

On average, each individual uses about 280 litres per day, including the 1,000 litres per hour from a garden hose while watering a lawn, and the water used for showering, washing the car, dishes, clothes, etc. Just to flush the toilet requires about 20 litres of water.

Forbidden Fruit

Despite the antiquity of the tradition, there is not and never has been any physical description in the Bible of the fruit of the Tree of Knowledge or of the Tree of Life in the Garden of Eden that would justify referring to it as an apple.

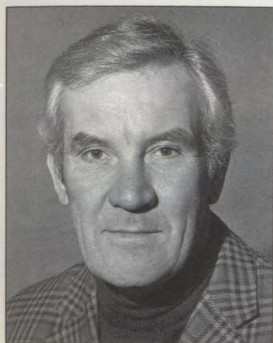
A First Poem

Down, down
Yellow and Brown
Leaves

Jonathan Estey, age 6

Seeking Solutions

Oat Breeding at Macdonald



by Dr. R.K. Stewart,
Associate Dean, Research

Being of Scots origin, I have always had a soft spot for oats. I love to tell how the traditional Scots student would survive

for a semester at university on a bag of oatmeal and a barrel of salt herring. Of course that student was a little bit before my time; my student fare was more likely to have been French fries, baked beans, and Scottish mutton pies. Still I do like my porridge on a cold frosty morning in Canada. The high nutritional quality of oat grain has long been recognized and recent research findings have demonstrated that oat bran is good for reducing serum cholesterol levels in humans. Apparently there are substances called "mixed linkage beta-glucans" in the oat bran which are responsible for this reduction in the cholesterol levels. I am not a dietitian, but

I suppose I could argue that oat bran must be beneficial to those of us who worry about high cholesterol levels. Unfortunately I am at that age when I am told I should be worrying.

Macdonald College has a history of success in oat breeding, and a total of 10 oat cultivars have been released from the Macdonald oat breeding program. Two of the cultivars (Laurent and Baldwin) currently recommended in Quebec were developed by H.R. Klinck, Emeritus Professor of our Plant Science Department. I am happy to report that the tradition of oat breeding at Macdonald is being continued by Dr. Diane E. Mather, who was appointed to the Macdonald College staff in 1988. Dr. Mather will continue to emphasize agronomic performance and grain quality in her research program, but she is taking a different approach to the problem of oat breeding than that of Dr. Klinck. The pedigree method used by Dr. Klinck requires hand-sowing of segregating genera-

tions and hand-pulling of selected lines. With rising labour costs, mechanization of planting and harvesting have to be considered, but precision seeders are costly and mechanized harvesting is not really suitable in a pedigree breeding program. Dr. Mather has, therefore, decided to use what is called the bulk method. In this approach breeding material is advanced through early generations in bulk plots where there is little opportunity to impose selection. In advanced generations large numbers of lines have to be extracted and evaluated. Several hundred panicles are collected from a bulk plot, threshed individually, screened for grain quality, and planted in head rows to be screened for agronomic traits. With this method mechanized seeding and harvesting of bulk plots is feasible. Although a precision seeder is not required, a research seeder does make the method much more efficient and the Quaker Oats Company of Canada did contribute towards the purchase of just such a seeder.

I was happy to see that Quebecers have discovered what Scots students have known for a long time: that oats are not just food for horses and that they are growing more oats for human consumption. Consequently, part of Dr. Mather's research will be looking at the milling quality of Quebec oats with respect to their use for human consumption. She will be looking at the beta-glucan content for instance. In collaboration with Dr. Kushalappa, who is also in the Department of Plant Science, Dr. Mather will be looking at the possibility of developing resistance to crown rust, and with Dr. Westgren, of the Department of Agricultural Economics, she will be looking at the possibilities of modelling the milling process.

I was surprised to learn that the Macdonald oat breeding program is the only one in Quebec and, therefore, I was gratified to see that the program is being pursued by such a vigorous young researcher as Dr. Mather.



Dr. Diane Mather and representatives of the Quaker Oats Company. The company assisted in the purchase of the precision seeder shown above. Photo by Helen Cohen Rimmer.

Reunion '89

A Weekend to Remember

One of the largest turnouts in recent years—some 400 graduates and spouses returned to Macdonald College for a beautiful sunny and warm October 14 weekend. Friday night saw many friends and former classmates gather for informal get-togethers. They continued to arrive on campus on Saturday morning to start a day filled with activities: seminars, tours, displays, an art exhibition, a book launching, a tree planting, an annual meeting, and the Dean's Reception. Students and staff were on hand to greet the returning graduates and act as hosts and guides. As well as the Reunion Luncheon, when special tributes were paid to the Classes of '39 and '64, class dinners were held on campus and in nearby restaurants and hotels. Also on campus were woodsmen and woodswomen, gathered to celebrate their 30th Anniversary Reunion and Competition. They, along with other graduates and staff joined the Diploma Graduates' Association for a great barbecue supper at the Farm Centre. Later in the evening the Diploma grads hosted a Reunion Party in the Centennial Centre which, from all reports, was a great success.

From a quiet coffee with an old friend to the class cheer from '64 there was something for everyone. Reunion is a time to walk the old halls and wake the ghosts of the past, to relish old memories, to renew acquaintances, and to capture and relive for even a brief moment a very special, pivotal point in one's life.

Reunion Luncheon

Helium balloons high above the tables of the Class of '39, class cheers, and tinkling glasses as toasts were proposed: the Reunion Luncheon was a festive occasion. Jean McHarg, BSc(HEC)'60, a member of the executive of the Macdonald Branch for some 10 years and President for the past two, and Harold Blenkhorn, BSc(Agr)'50, a long-time Director, both stepped down from the executive and were presented with gifts. The in-coming President is Richard Caron, BSc(Agr)'83. Other mementos were presented to Dr. Eugene Terry, BSc(Agr)'64,

MSc(Agr)'66, who had travelled the greatest distance—from the Ivory Coast—to attend the Reunion, and to the most senior (you wouldn't believe it!) of the graduates at the luncheon, Celia Ferguson Henneberry, BHS'37, and Donald Adamson, BSc(Agr)'37. Special pins were presented to graduates from the Honour Years of '39 and '64, and the Class of '44, with 44 percent participation, won the Honour Shield. Joy MacLaren, who accepted the Honour Shield on behalf of the class, said that a class gift from the Class of '44 would be a bursary for a graduate student. Gordon Thomson, BSc(Agr)'48, received a hearty round of applause for having recently grown the largest pumpkin in the world and for having broken the previous record in doing so. Dean Buckland proposed a toast to all returning graduates and then said it was his great pleasure to call upon one of Macdonald College's most distinguished graduates, Irving Layton, BSc(Agr)'39, to propose the toast to the college.

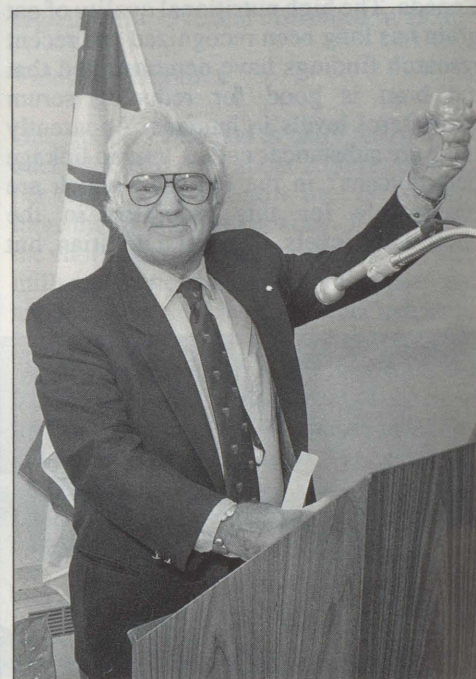
Toast to Macdonald College

"I am conscious of the great privilege and honour to be asked to toast Macdonald College," Irving Layton said. "Everyone has his or her own private version of Macdonald. I am grateful for an occasion such as this when I meet individuals who remind me of the very formative years I spent at Macdonald. It was a happy accident that brought me here: a chance meeting with someone I had not seen for many years. He informed me that the fees were only \$50 and that the government paid each Quebec student \$9 a month for studying here. I quickly multiplied 7 times 9 and realized I'd come out with a profit of \$13. Since I couldn't resist a bargain, I decided to register at Mac.

"I came away with more than \$13. I came away with the memory of dedicated men and women whose humanity and teaching skills gave me an ideal to look up to and to try to emulate. It was here I first began to think of myself as a poet and to write my first serious compositions. Each of us has taken away from this place what is most germane to his

needs and disposition. What I took was an awareness of the natural world, a love and knowledge of animals, vegetables, fruits, and plants which any reader of my poems will, I hope, find reflected in them. My latest book is titled 'Wild Gooseberries: Selected Letters of Irving Layton.' It was at Macdonald that I learned of the enthralling mysteries contained in the lowly onion and turnip.

"I also learned something about human nature for my classmates were ignorant, shallow, bigoted, conceited, patronizing, prejudiced—just like myself. It was at Mac that I discovered my talent for outraging people for



Irving Layton toasts Macdonald.

expressing unpopular opinions about colonization, the Spanish Civil War, and the flattery of Canadian politicians. It is a talent I honed to such a fine point that it got me three Nobel Prize nominations and the Order of Canada. I shall always be grateful to Macdonald students for allowing me to practice my black arts on them. The poem (which he read) 'The Bull Calf' owes its existence to

my days at Mac.

"Join me in a toast to Macdonald College and salute Dean Buckland and his associates. Long may Mac continue and may its future students have memories as cherished and wonderful as those we all share here today."

(For reasons of space, we cut a few lines from this toast.)

Class of '64

An oak tree has been planted near the Centennial Centre by the Class of '64 in memory of their Class President Matti Juhani Pirhonen who died in 1984. A fellow classmate Dr. Eugene Terry, said that Matti had touched all his classmates' lives when they were students and that by planting the tree they were celebrating the fact that they knew him.

Matti's wife Diane, BSc(FSc)'64, said that

her husband had taken great joy in keeping in touch with his classmates, that he cared for all of them and had hoped they would all be together on their 25th anniversary. Diane said she was pleased they had chosen a solid, sturdy oak to remember him and was touched by the wording on the plaque:

"He who Plants
Kindness
Reaps Love"



The 25th Anniversary Class of '64 planted an oak tree in memory of their Class President and friend Matti Pirhonen who died in 1984. His wife Diane, above, expressed appreciation to her fellow classmates.



Jean McHarg, BSc(HEC)'60, steps down as President of the Macdonald Branch and receives a gift from Dean Roger Buckland for her years of service to the graduates.



Dean Buckland presents Harold Blenkhorn, BSc(Agr)'50, with a gift for his long service as a Director.



Dr. Eugene Terry, BSc(Agr)'64, travelled the most miles for Reunion—from the Ivory Coast—and received recognition from Dean Buckland.



The Class of '44 with Dr. Laura Rowles, 3rd from left. The Class received the Honour Shield for the highest percentage, 44 percent, of the class present.

The Class of '39, 1 to 1st row, Jean Irving, Betty (Gray) Sibson, Cyril Dahms, Christine (Patterson) Dahms, Marion (Wall) Bain, Irving Layton, Rosemary (Deslauriers) Desy. 2nd row, Florence Farmer, Helen Neilson, Jean (Henry) Ratchelous, Helen (Everett) Lyman, Ruby (Alexander) Jackson, Doris (McKenzie) Laidley. 3rd row, Marguerite (Vaudry) Seeley, Wilson Spencer, Brian How, Stuart Merrill, Keith Rose.





Emeritus Professor Helen R. Neilson, BHS '39, is congratulated for her new book on Macdonald College by fellow classmate and author Irving Layton. Helen's book was launched at the Dean's reception where she signed copies for the graduates.

Dip 39ers, l to r, Stuart Merrill, Boyd Honey, and Keith Rose, enjoyed the Reunion Luncheon and the Diploma Reunion at the farm later in the day.



It was a great day for a Woodsmen Reunion.



MACDONALD COLLEGE OF MCGILL UNIVERSITY 1907-1988

A Profile of a Campus
by
Helen R. Neilson

is now available! The price is \$14.95 / book, add \$4.00 for mail order (*payable to Macdonald Bookstore*). If you are interested in ordering one or more copies, please fill out the order form below (please print) and send it to Macdonald College Bookstore, P.O. Box 60, Macdonald College, Ste. Anne de Bellevue, Quebec H9X 1C0

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Art Exhibition at Macdonald

by Hazel M. Clarke

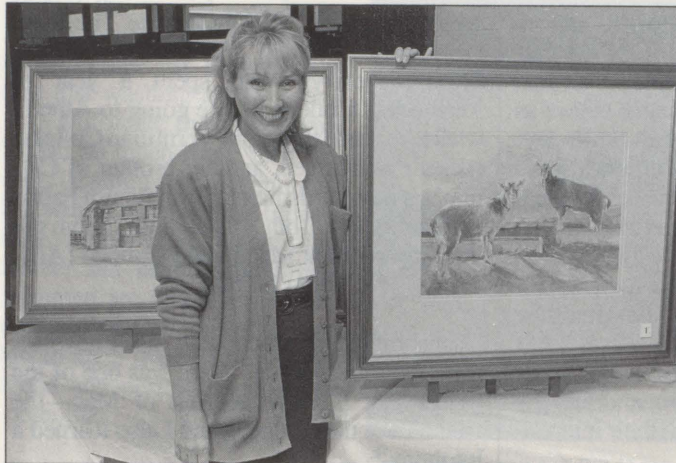
A most welcome added attraction at this year's Reunion was an exhibit of watercolours and pen and ink drawings depicting various college buildings and animals by artist Bonnie Folkins. The arena at the farm, where so many Mac students have shown cattle, the Centennial Centre, the Raymond Building caught the artist's eye as did the livestock and wildlife that may be found at the farm, the Ecomuseum, and the Raptor Centre.

"I tried to capture a complete picture of campus life for this exhibition," the talented and vivacious young Maritimer explained prior to the exhibition. "Many buildings, most portrayed in pen and ink, are depicted in the late winter and early spring. They are rather linear. I proceeded to paint the animals in the springtime and summer and the birds from the Raptor Research Centre and the turtle from the Ecomuseum in the early part of September."

A native of Sackville, New Brunswick, Bonnie Folkins studied at Mount Allison University where she took drawing and painting courses under Edward Pulford, David Silverberg, Lawren P. Harris, and Christopher Pratt. In 1967 she won the C.S.E.A.—Hallmark Art Scholarship for Atlantic Canada.

Following an exhibition at the Owens Art Gallery of Mount Allison University, Bonnie held one at the Faculty Club at McGill. Bonnie, who is now working in Montreal, said, "Professor Harpp saw my work and became very enthusiastic and proceeded to make arrangements for me to show at an alumni gathering. It was at the Burnside Hall showing that I met Marcel Couture, Associate Dean of Community Relations, and he asked me if I could create an exhibition that would portray all aspects of Macdonald College."

Growing up in Sackville, where her father had a hobby farm, Bonnie became familiar with various crops and animals. "We'd have picnics at the Experimental Farm in Nappan, Nova Scotia, and I was always delighted to



Bonnie Folkins at her recent exhibition at Macdonald College.

visit the livestock, particularly the sheep. All of the memories came to life again with my visits to Macdonald College. The traditional architecture is spectacular because the rust-coloured brickwork produces a true play of complementary colours when observed against a blue sky."

Bonnie's early training was in oils but after moving to Montreal she spent most of her time drawing in pencil—large detailed studies. She also made several trips to Europe. "I enjoyed drawing, and it travelled well," Bonnie said, "and it was a natural beginning for the watercolour method. I have had the good fortune to study landscape painting from some of the best artists in Canada, and one teacher—watercolourist Ted Pulford—stands out in particular. He took me under his wing when I was a student and, years later, when I went to see his collections from Ireland or Bermuda or Newfoundland, we discussed techniques and weather conditions, and I would listen to the anecdotes behind every painting."

"Landscape painting," Bonnie explained, "is about the weather, the humidity, the wind, and the fog. It is about the sun or the lack of sun and how the paper reacts to all of these conditions. It is about my feelings toward the colours and the shadows. Only another landscape painter can truly understand the ex-

haustion after a day of extreme heat or cold or of being rained out halfway through a successful attempt at a sketch!"

Bonnie's work includes paintings from Europe, Hong Kong, Thailand, Indonesia, the Florida Waterways and, of course, the Maritimes. She said that one of her most exciting trips was to Frobisher Bay on Baffin Island. While there she worked in oils and pencil, painting the original Hudson Bay post as well

as fishing boats and ice floes. "I took a plane to Lake Harbour Village," Bonnie said, "and this is one place I dream of revisiting."

Bonnie Folkins' paintings are in the permanent collections of DuPont Canada Inc. She is the New Brunswick artist for the company. She is also in the Owens Art Gallery in Mount Allison University, McGill University, and now Macdonald College.

Speaking of the Owens Art Gallery at Mount Allison, Bonnie said that Keilor Bentley, the former curator, stressed the importance of keeping up the traditional values in art. "He gave me confidence and encouraged me to flourish in the formal method of painting. He is behind many of the Maritime artists."

Referring to her work for the exhibition at Macdonald, Bonnie said, "I loved painting the goats, the cows, the sheep, and, in particular, the turtle. The turtles thought that I was going to feed them and came right out of the water and rested on a log. I was surprised but fascinated by the markings which were a highly refined contrast against the mysterious water. Macdonald College is rich in subject matter. Walking on the quiet campus is an easy way to forget the noise and stress of the big city. It has been a wonderful experience to be able to participate in a project concerning this fascinating institution."

Diploma Corner

Cattle and Callum: A Winning Combination



by Theresa Greene
Assistant Director, Farm Practice, Diploma in Agriculture Program

He is as much a part of agricultural fairs and cattle shows as the cattle are. Callum McKinven, well

known as the former herdsman for Beerwort E.T. Farms, along with his wife Kathy Beerwort - is continuing to make a name for himself. I caught the two of them after they returned from a show in Tennessee and just before their departure for Madison, Wisconsin, for the World Dairy Expo, and had the chance to talk with them about their interesting career paths.

Both were born and raised on farms and felt that the greatest influence on the direction of their lives came from their parents. They attribute much of their talent and success in the animal fitting business to their upbringing.

Callum was raised on a Jersey farm managed by his father in North Hatley. In 1969 his father bought the farm, which at that time had the highest classified Jersey herd in Canada. Callum started showing cattle when he was 10 years old. His father taught him about showing then and "to this day I still take

advice from him," Callum told me. The home farm is now owned and managed by his brother Derwyn who spent a year at Macdonald College before going to Alberta where he graduated from Vermilion College. Alistair McKinven, another brother of Callum's is now herdsman for Bonnyburn Farms in Ayer's Cliff. Both Alistair and Callum got their diplomas at Macdonald College (Alistair in '77, Callum in '80).

"I met friends at Macdonald that I have for life," Callum told me. "That was one of the things that I really got out of Mac—the friends and the contacts, and I also learned a lot there."

Kathy Beerwort was also raised on a farm and she too started showing cattle at a very young age. She was only six years old when she became active in various 4-H competitions. Her father bred top quality Holstein cattle for a number of years before having a complete dispersal in 1980 and selling his farm to his son, Ken. Kathy's father was active in the business of buying and selling cattle when he was approached by an investors' group that eventually hired him to manage Beerwort E.T. Farms. Callum was herdsman for the investors organization from the fall of 1985 until June of 1988.

Callum's first experience with Holstein cattle was at Crackholm Farms in Richmond where he was told to clip 30 head for practice. When he finished, he was told to start all over again. "I remember the first couple. I was all proud, but if you were to show them, you'd be embarrassed," said Callum as he looked back on his valuable learning experience. Just before going to Beerwort E.T. Farms, Cal-

lum did free lance cattle fitting for seven months straight "I had three days that I was at home: three days that I wasn't working at a show," Callum told me.

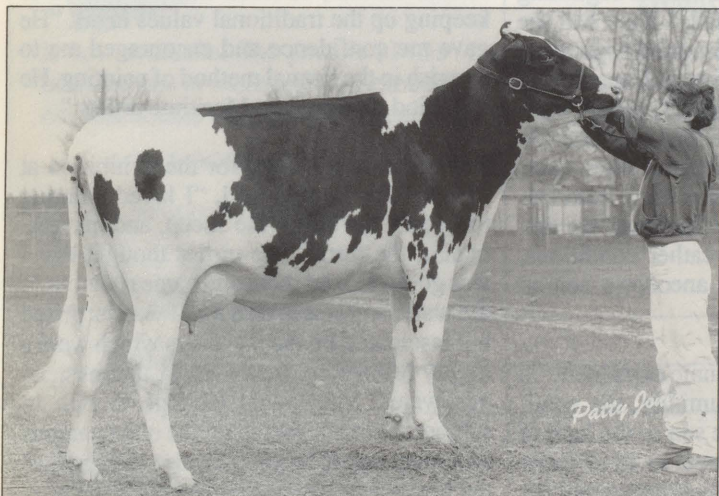
Kathy spent three years studying accounting before she settled into the sciences so that she could study Animal Science at Macdonald College. She was homesick for the cattle shows and decided to leave Macdonald after a year, but she feels certain that had she gone directly to Mac she would have completed her degree. Kathy worked for Beerwort for a year then spent six months doing free lance cattle fitting.

Kathy and Callum were married in June of 1988 and have been working together ever since. In December of the same year, the young couple started renting a farm, including the quota, in Dunham, Quebec. They bought approximately 20 head of purebred Holstein and Jersey cattle to fill the quota. They already owned one cow that they had bought from Beerwort E.T. Farms as a senior yearling. Ventura Warden Edith was all Quebec four years in a row and all Canadian three years out of those four.

"Last winter I had the opportunity to sell her for a good price, a price that I couldn't really turn down so I sold her," Callum told me about this special cow and added "she helped us get started."

It was after she was sold in February of 1989 that they started buying better quality cattle and selling them as well as keeping other people's cows on the farm that they are still renting. Kathy's accounting has been a valuable asset in keeping the records in order throughout these transactions.

The secret to success in this type of business is, as Callum puts it "to know what you are looking for." Having "the eye" for cattle is something that takes a lot of practice that can be provided through 4-H, judging schools, and conferences on judging. Callum has judged a number of large shows including the Vermont State Holstein Show, the Massachusetts State Holstein Show, four breeds of



Kathy Beerwort with Ventura Warden Edith, the cow that really got Callum and Kathy started. "She was very special to us," Callum said.



dairy cattle at the Connecticut State Show, and a number of 4-H shows. Kathy has also had some experience judging at local 4-H competitions which they both enjoy the most because they can help the kids learn.

Callum told me about a breeder in New Brunswick that has him pick out animals to take to the shows. On one occasion, two animals that this breeder had not intended to show before Callum advised him to, ended up winning their classes. When I asked Callum why the breeder could not see their potential, he responded, "they had long shaggy hair and were a little dirty. He couldn't look through that to see the animal prepared."

Showing cattle is an important part of Kathy and Callum's business that they both enjoy. "We don't really have the money to put out front to advertise in the journals, so this is our way of advertising," Kathy said about going to fairs. "I think it increases the value of an animal if she wins a show, has a nice pedigree and is a good producer," added Callum. As well as the exposure for the animals they feel that the contacts made at the fairs are also important.

When investing in a valuable animal, Kathy and Callum advise the investor to give that

animal the special care it requires to make the investment worth-while. "It sounds silly but just washing a cow every day will make that cow come ahead so much more than the rest," Callum said. Brushing in the winter, feeding three times a day, being there when they calve, and keeping their feet trimmed are just a few of the things that Callum and Kathy do to keep their cattle feeling good and performing to their potential.

To be a successful cattle fitter Callum stressed the importance of temperament not only with the animals but also with other people. "If you like to argue, you're in trouble," Callum explained. Other advice from him included not developing prejudices and working with all breeds, never thinking that you are too good for any part of the job, working for whoever asks you (no picking and choosing), and making sure that the animals get the right preparation before a show is something too often overlooked. Some final advice, "don't give up. It is discouraging, but if you stay with it you'll get better," Callum said.

Callum and Kathy have many plans for the future. The prefix they'll be using is "Amlaird," which was the name of Callum's father's farm in Scotland. They have a two year lease on Jules Côté's farm in Dunham with a third year option. They do not plan to invest in a lot of machinery since they would rather put their money into cattle. They are also concerned about what might happen to the quota system so for



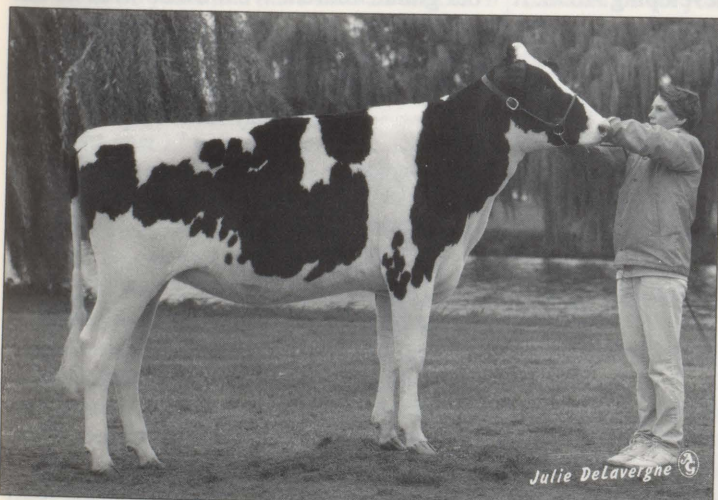
Callum McKinven and Bill Hayes, both Dip '80s, talking cattle, no doubt, at the first annual Diploma Reunion in 1987.

now they are working on building up their herd before buying a farm. Callum and Kathy welcome visitors to stop in and see the Holstein and Jersey cattle, two breeds they say—despite widespread belief—get along just fine together.

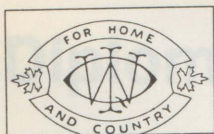
News of Scott Kirby

I was talking with Scott Kirby, Dip '86, at the recent Ayer's Cliff Fair. Scott was there helping his sister and brother-in-law with their Shorthorn cattle. All Scott's friends and former classmates will be pleased to hear that he has made a wonderful recovery from the multiple injuries suffered in a motorcycle accident more than a year ago.

Since this article was written, Theresa Greene has left Macdonald College and the Diploma in Agriculture Program and is now working for Les Systèmes Harvestore de l'Estrie Inc., in Granby, Que. Theresa tells us she is enjoying her new job in the Technical Services section and that she is working with two Macdonald grads: Jules St-Pierre, BSc(Agr)'79, who is Director of Technical Services and Sales Manager, and Michael Arnkearn, BSc(Agr)'77, who is the General Manager. We wish Theresa well in her new career and know that she will keep us in mind for future Diploma Corner articles and will also pass along other grad news for the Newsmakers' section of the Journal.



A big winner for Cherry Crest Holsteins and Callum - Glencameron Starbuck Leah was the Junior Champion at Madison, Wisconsin, in 1987. She was sold after the show.



The Quebec Women's Institutes



President's Message

From Pearl's Place in Dunham: At last you hear from me in *The Macdonald Journal*. During

the past year I have been given names and addresses of many new members. I sent a note of welcome to all of you but recently our Provincial Secretary handed me the list of 51 new members for the past year. Unfortunately, I did not keep a record of my notes of welcome so if I have missed any, please accept my apologies and know that you are most welcome in this organization. Each and every one of you is an integral link in a chain that encircles the world and includes around nine million women.

I enjoy hearing from those who take the time to drop me a line, and I enjoy reading your WI news in *The Record*. I realize that there is WI news in other newspapers but, unfortunately, I don't see those papers. If any of you as members or branches are interested in having newsletters from other provinces, please contact me and I will forward the addresses. There is a charge for these, but the benefits far outweigh the small cost. Until next time—for Home and Country.

Pearle Ingalls Yates

At Aids Conference for ACWW

Last June an international conference on AIDS was held at McGill University in Montreal. On behalf of the Associated Country Women of the World, I attended the Opportunities for Solidarity international meeting of non governmental organizations (NGOs) involved in community AIDS service. This was a meeting of representatives from 50 countries who hope to set up a world-wide data bank detailing existing AIDS programs so organizations can exchange information and help each other.

We got to know each other at the first workshop and many expressed their fears for

the future. John Nkurunziza from Rwanda works with the Red Cross. His fear and concerns dealt with blood transfusions which are not safe in many countries as the blood is not tested. During question period people were interested to learn about ACWW and were glad that we are taking an interest. One man from New Zealand, whose mother had been a WI member, told me he was sure that the Women's Institutes could do a great deal to help educate the women of the world. He was working with an AIDS foundation. I'm not sure whether he had AIDS or not, but I did feel he was making an appeal from his heart for help.

An Ojibwa Indian woman from Minnesota spoke at the main conference and was also at the NGO sessions. What a wonderful person. Very brave. She has almost died twice because of AIDS. She has a 10-year-old daughter. She would love to have more children but with AIDS would not be able to watch them grow up. Her tribe and family are supportive and give her help, love, and prayers. She will have a bed in a hospital when she needs it. What a difference from many of the patients in Africa who are just told to go home to die with no medication. They do not have the money to pay for the drugs that are available in the developed world that help people to live longer with HIV before developing AIDS. It

was heart-breaking to hear some of the stories of African villages where 40 to 60 per cent of the people are infected with HIV.

A big concern is who is going to take care of the children. A nurse from Dallas, Texas, who works in an AIDS clinic said they already have a home for children whose parents have AIDS and need a few hours rest or have hospital appointments. Two babies are permanent residents because their parents have died.

From the African delegates we learned of many inexpensive, simple but effective educational tools that are being used to encourage good morals and safe sex. I feel the WI can help in the fight against AIDS by lobbying the government to provide more money for research and by promoting proper education. December 1 is World AIDS Day. If every branch could hold an information meeting with a trained resource person and appropriate educational materials, it would not stop the epidemic but just think of the awareness and the number of people that could be reached with the correct information to help prevent the spread of AIDS.

We may not be in the high risk group ourselves but AIDS is going to affect our children and our grandchildren. We must do what we can

AIDS CASES IN CANADA

As of February 13, 1989

As of May 15, 1989

Province	Number	Province	Number
British Columbia	464	British Columbia	540
Alberta	142	Alberta	151
Saskatchewan	25	Saskatchewan	26
Manitoba	28	Manitoba	32
Ontario	967	Ontario	1058
Quebec	705	Quebec	830
New Brunswick	11	New Brunswick	15
Nova Scotia	34	Nova Scotia	43
Prince Edward Island	2	Prince Edward Island	3
Newfoundland	10	Newfoundland	10
Northwest Territories	1	Northwest Territories	1
Yukon	1	Yukon	1
Total	2,390	Total	2,710

Source: Federal Centre for AIDS, Health and Welfare Canada.

to prevent having to face the death of a son, a daughter, or a grandchild because of AIDS

Lucy French
FWIC International Affairs Convener

Mrs. Helen Routliffe
Education & Cultural Affairs



Helen Routliffe, Education and Cultural Affairs Convener, and Mary Baird discuss prize-winning entries in the handicraft competition at the Convention in May.

My husband Rick and I recently celebrated our 25th wedding anniversary. Prior to marriage and starting our family, I taught school. We have four children: Jonathan, Jennifer, Laurie, and Peter.

I have been a member of Fort Coulonge WI for some 20 years and have held all offices. I am currently treasurer and convener of education and cultural activities at branch level and secretary of Pontiac County WI.

Over the past 17 years, I have been a member of both elementary and secondary school committees. For the past seven years I have been a member of the Pontiac Protestant School Board and the Protestant Regional School Board of Western Quebec as a parent representative secondary. As chairperson of the Canadian Cancer Society in the Fort Coulonge area, I am responsible for organizing our annual campaign and mailing receipts for memorial contributions.

My hobbies include sewing, knitting, and learning new crafts taught through our local adult education services. I like to keep active and enjoy my work with the WI. I am enjoying

the Provincial Convener'ship and hope you will continue to give me your help and guidance.

Howick WI Glass Drive

After co-operating with a glass collection organized by an Ormstown couple for 3 1/2 years, the Howick WI began to handle it on their own in May 1987. The Howick Council has provided a dump truck and a driver. Women's Institute members, a few dedicated men, and members of the 4-H, both boys and girls, have worked at this event twice each year - May and October - since that time. This year we collected over five tons (10,114 pounds to be exact) to be sent to Consumers' Glass, a recycling company. From our 10 collections, we have sent in well over 21 tons.

We ask that the glass be clean - no lids, no plastic, no metal neck rings - and most people have responded. Many of the people bring the glass in cardboard boxes, and this year we had extra workers collapsing, folding, and tying up the cardboard. This refuse was given to a young women's church group that take it to an area where there is a cardboard recycling project.

With these two projects a great deal of waste that can be recycled has found a new home and has not ended up in the local dump. Every effort, whether large or small, helps our environment. This is just the beginning. We must all do more and right now. Or could it already be too late?

Rhoda McFarlane
Howick Publicity Convener

Morning Glory Muffins

(Mabel Mackay's Prize-Winning Recipe)

- 2 cups all purpose flour
- 1 1/4 cups white sugar
- 2 teaspoons baking soda
- 2 teaspoons cinnamon
- 1/2 teaspoon salt
- 1/2 cup raisins
- 2 cups grated carrots

- 1/2 cup nuts
- 1/2 cup coconut
- 1 apple, peeled and grated
- 3 eggs
- 1 cup salad oil
- 2 teaspoons vanilla

Put first 5 ingredients into large bowl. Stir in raisins, carrots, nuts, coconut, and apple. In another bowl, beat eggs, salad oil, and vanilla. Stir in flour mixture until moist. Fill muffin tins. Bake at 350 degrees F. for 30 minutes.

Congratulations

The following branches have recently celebrated special anniversaries: Ascot, 70th; Brompton Road, 65th; Granby Hill, 65th; Jerusalem-Bethany, 70th; Pioneer, 75th.

Welcome

We are most pleased to welcome the following new members to our WI family: Julia Somers, Huntingdon branch, Joan Champ, Howick, Valerie Hodge, Kinneer's Mills, Tina Barney, Stanbridge East, Marion Mountain, Richmond Young Women, and Beatrice Card, Margaret Belec, Dulcie Burnell, and Claire Olson, Hatley Centre.

Handicraft Competitions - 1990

QWI Competitions

Special over 70 category: Article made from waste material.

1. Sewing: Wall Hanging—farm scene—not larger than 18 X 24 inches, not smaller than 16 X 22 inches. Machine pieced and machine quilted. Samples of materials to be attached.
2. Photography: QWI at Work - 4 pictures - 4 X 6 - colour and mounted.
3. Crochet: Afghan—not smaller than 39 X 45 inches. Samples of pattern and threads used to be attached.
4. Weaving: Lady's Vest—materials optional, open front. Attach sample of threads used.



Three members of the Howick WI who were recently presented with Life Memberships: Mrs. Rhoda McFarlane, Mrs. Isabel Templeton, and Mrs. Grace Brown.

- Knitting: 3-piece Baby Set—bonnet, sweater, and booties. Attach sample of wools and pattern used.
- Needlework: Wool on Cotton Canvas, any stitch or stitches, any article, overall design bargello, florentine, gross point. Attach sample of wools and materials used. Size of article left to member.

J & P Coats Competition

- Knitting: Child's Pullover, size 4 - 8, with Animal Motif. Red Heart Wool. Attach sample of wools used and labels.
- Embroidery: 3-Dimensional Picture, 6 X 7 inches, framed. Leave back of work open. Use Anchor Floss and attach labels and samples of colours used.
- Crochet: Round Tablecloth, not smaller than 60 inches, not larger than 75 inches. Use Crochet Cotton, size 10, 20, or 30. Attach samples of patterns, threads, and labels.

Quebec Textile Handicrafts Competition - 1990

Weaving

- Carpet (Mat): Technique: Ripsmatta (motor) warp rep (base) pick up weave. Size: not less than 60 cm at its smallest measurement.
- Girl's Skirt - 2 - 8 years. Technique and pattern optional.
- Cushion: Technique: padded double weave. Size: not less than 40 cm at its

smallest measurement.

- Placemats (2) Technique: interlocking weft. Size: not less than 32 cm at its smallest measurement.
- Dish Towels (2) Technique: huck-a-back weave. Size: not less than 50 cm at its smallest measurement.

Sewing

- Lady's Ensemble: Skirt and blouse of matching or co-ordinated materials. Pattern and material optional.
- Child's Standard Windbreaker (with hood)—4 - 12 years. Material and finish optional.
- Adult's Nightdress: Pattern: Granny. Material optional.
- Child's Overalls—2 - 6 years. Material and pattern optional.
- Set—Jewellery Case and Toilet Bag. Materials and pattern optional.

Knitting

- Afghan: Technique: crochet. Size: not less than 115 cm X 140 cm.
- Lady's Jacket: Technique: crochet. Length of sleeves optional. Front opening without buttons.
- Baby's Set: sweater, bonnet, and booties. Technique: knitting.
- Lady's Beret and Scarf Set. Technique: knitting.
- Table Centre: Technique: crochet. Size: not less than 25 cm at its smallest measurement.

Miscellaneous - Fancywork

- Wall Hanging: Technique: crochet on jute. Size: not less than 30 cm at its smallest measurement. The wall hanging must be ready to hang.
- Pillow Cases (2): Technique: simple embroidery: not less than 5 different stitches.
- Edging for Pillow Cases (2): Technique: crochet. Design optional. Size: not less than 5 cm wide.
- Jam-Jar Covers (3): Technique: embroidery in cross stitch. Size: not less than 15 cm.
- Greeting Cards (3): Technique: painting on silk.

Safety First

by Elsie Prevost

Play it safe when preparing turkey.



The cavity of a turkey is an ideal place for bacterial growth: play it safe when preparing, cooking, and storing your turkey. Thaw turkey in the refrigerator or in cold water. Allow 10 hours per kilogram (five hours per pound) to thaw bird in the refrigerator, or two hours per kilogram (one hour per pound) in cold water. If you must thaw your turkey at room temperature, place the bird in its original wrapping in a brown paper bag, a covered cooler, or wrap it in a towel: this will keep the surface cold while the interior thaws, reducing the chance of bacterial growth. Allow three hours per kilogram (1 1/2 hours per pound). Once thawed, refrigerate and cook within 24 hours. Never leave the turkey sitting at room temperature.

Always stuff your turkey just before cooking and never roast the bird at a temperature lower than 300 degrees F (150 degrees C). Use a meat thermometer to check if the turkey is done. The thermometer should register 160 degrees F (70 degrees C) in the stuffing and 185 degrees F (85 degrees C) in the thigh of an unstuffed turkey.

Never partially cook a turkey one day and complete the cooking the next; this will encourage bacterial growth. After serving, always remove stuffing from the turkey and the cooked meat from the bones. Refrigerate for 3-4 days or freeze for up to 1 month.

If a meat thermometer is unavailable, use the following chart as a guideline. Cook at 325 degrees Fahrenheit.

3 kgs. (7 lbs) turkey	cook for	3 1/2 hrs - 4 hrs
4 " (9 ") "	"	4 " - 4 1/4 "
5 " (11 ") "	"	4 1/2 " - 5 "
7 " (15 ") "	"	5 1/2 " - 6 "
9 " (20 ") "	"	5 3/4 " - 6 1/2 "
11 " (24 ") "	"	6 1/4 " - 7 "

Turkey is done when the juices run clear and the drumstick moves easily. Happy and safe eating!



Members of Granby West WI, l to r, Lois Pow, Edna Irwin, Yvette McElravy, Bea Hall in chair with new Abbie Pritchard Throw, Hazel Whitehouse, and Jeannine Lussier. Missing: Ellen Labrecque who took the photo.



Representatives of the Women's Institutes who attended a CBC-QFA Workshop with other English-speaking groups. A day of exchange with CBC executives was enjoyed in Montreal.



Dalesville-Louisa members in the kitchen! They entertained senior citizens at their annual social time. Music, games, contests, refreshments, fellowship, and friendly conversation was enjoyed by all. Thanks to music "gratis" by Harold, guitar, Ammond, violin, and Rhodeen, piano.



Lillian MacWhirter, left, with Daisy Henderson. These members, together, supervised the creation of many afghans by Black Cape WI. Twenty-three afghans were made in 10 years and sold to increase funds.



On Sunday, June 3, York WI celebrated its 50th anniversary. Guests included members from other county branches and Mrs. E. Vautier represented Bonaventure County. Two Charter Members, Mrs. Mary Baird and Mrs. Florence Palmer, above, were presented with 50-year pins and corsages. Both members are still active.

Newsmakers

On Campus

Agricultural Hall of Fame

On November 12, 1989, DR. JOHN ELLIS MOXLEY was inducted into the Agricultural Hall of Fame in Toronto.

Dr. Moxley, BSc(Agr)'47, MSc(Agr)'52, served as a Lecturer and Professor of Animal Breeding and Genetics for 40 years in the Department of Animal Husbandry (later Animal Science) at Macdonald College. He was made an Emeritus Professor of Animal Science in 1987.

His vision and expertise in animal genetics, as well as his understanding of computers, provided the basis for the development of Quebec's Dairy Herd Analysis Service. This program has had a significant impact on the artificial insemination industry by facilitating the progeny testing and proving of more bulls, thereby improving the genetic merit of the Canadian cow population. The Dairy Herd Analysis Service was one of the first North American organizations to introduce somatic cell counting as a service to farmers.

As evidence of his recognition internationally, Dr. Moxley has been a consultant to the International Dairy Federation since 1978 and has consulted for various organizations in several countries, notably China, and countries in the Caribbean. He has served his community well in such activities as Scientific Advisor, Montreal Diet Dispensary, Member, Conseil des Productions Animales du Québec, and President, Canadian Society of Animal Science.

In recognition of his service to agriculture, Dr. Moxley has been awarded the Commandeur de l'Ordre des Agronomes du Québec, the Certificate of Merit from the Canadian Society of Animal Science, the Grindley Award from the Agricultural Institute of Canada, and the Award of Merit from the Canadian Association of Animal Breeders.

Congratulations to PROFESSOR WILLIAM GRANT, of the Department of

Plant Science, who has received numerous honours and awards in the last few months. In May he was made a Fellow of the Royal Society of Canada. Established over 100 years ago by the Marquess of Lorne, Canada's fourth Governor General, the Society promotes research and learning in the arts and sciences.

Professor Grant received a Japan Society for the Promotion of Science Fellowship - a 30-day stay in Japan for participation in research and speaking engagements. In July he received the first Life Membership ever given by the International Organization of Plant Biosystematists. He received this award during the 4th International Symposium of Plant Biosystematics in Kyoto, Japan. The Japanese Organizing Committee for the 1989 Symposium presented him with a certificate which states: "...Awarded in appreciation of the many years spent in developing the International Organization of Plant Biosystematics and for the extensive work in promoting this field and overseeing its evolution. This has been a tremendous undertaking..."

At the headquarters of the Japan Society for the Promotion of Science (JSPS), a tie was presented to Dr. Grant bearing the initials JSPS in recognition of the cooperation and assistance he has given to Japanese cytogeneticists and biosystematists.

In August Dr. Grant was the recipient of the Canadian Botanical Association's 1989 George Lawson Medal in "recognition of the cumulative and distinguished contributions of a senior investigator and/or teacher who has worked in Canada for the greater part of his/her career, and whose influence has contributed notably to the advancement of Canadian botany." This was awarded during the annual meeting of the American Institute of Biological Science in Toronto.

PROFESSOR ROBERT S. BROUGHTON has been named the first recipient of the Jim

Beamish/Canadian Society of Agricultural Engineering prize. The prize was presented during a joint meeting of the American and Canadian Societies of Agricultural Engineering which was held in Quebec City last June. The Jim Beamish Prize was established in memory of the first President of the Canadian Society of Agricultural Engineers - who worked for many years in soil and water management.

Congratulations to DR. JEAN DAVID, retired Associate Dean Student Affairs and Public Relations, and a long-time member of the staff here at Macdonald who was made a Commandeur de l'Ordre du mérite agricole by l'Ordre des agronomes du Québec.

FLORE FOURNIER, a Lecturer in Economics in the Diploma in Agriculture Program is a finalist in the "Chapeau bas aux Québécoises" competition organized by Les Copérants, société mutuelle d'assurance-vie. Four young women who are making significant contributions in such fields as health, law, and the environment are eligible for a \$20,000 grand prize. Flore Fournier is coordinator of a joint project between Macdonald College and Agriculture Canada to establish a research centre in ecological agriculture at the college and of a pilot project in the Lanaudière region to introduce ecologically sound farming practices.

PROFESSOR A.R.C. JONES, recently retired from the Department of Renewable Resources, was inducted into the Hall of Fame of the American Maple Museum, which is located in Crogham, N.Y. The ceremony took place on May 20, 1989. Professor Jones was the third person from Canada to be honoured since the Hall of Fame was established.

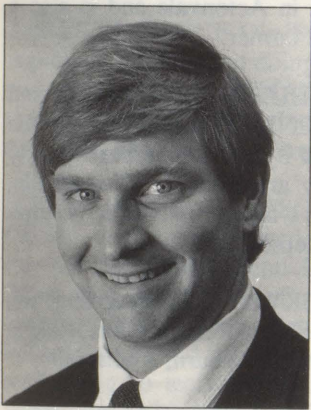
WALTER HUMPHREYS, BSc(Agr)'35, the first maple fieldman for the Ontario Maple Syrup Producers Association, is a member of the Hall of Fame, as is Ron Shaw, a corn and maple producer from Hawkstone, Ont. Ron is Past President of the North American Maple Syrup Council and Past

President of the Maple Syrup Producers of Ontario. Professor Jones was presented to the Hall of Fame by Walter Humphreys.

DR. A. F. MACKENZIE, of the Department of Renewable Resources, has been elected a Fellow of the Canadian Society of Soil Science.

CHANTAL PAUL, BSc(Agr)'87 has been appointed Extension Officer in Extension Services. Our best wishes to Chantal and LOUIS-PHILIPPE PEPIN, BSc(Agr)'88, who were married on September 9, 1989.

New Economics Chairman



Professor Westgren

from Cornell University in 1974, majoring in agricultural economics. He earned the M.B.A. from Denver University in 1976, and the PhD from Purdue University in 1978.

Professor Westgren's research area is agribusiness management, with foci in strategic management of agricultural firms and feasibility of new agricultural products and markets. He held positions at the University of Illinois and Santa Clara University's Institute of Agribusiness prior to arriving at McGill in July 1988. He has taught over 15 different undergraduate and graduate courses in agricultural economics and agribusiness management.

Professor Westgren became Chairman of the Department of Agricultural Economics in June, 1989.

Student Recruitment: Meet Linda Montreuil



Linda Montreuil

"I am delighted to be back in the liaison business. After an absence of three years, while I worked as

Co-ordinator of the Fellowships and Exchanges Office in the Faculty of Graduate Studies and Research, it is a real treat to be back on the road travelling around the country speaking to students about McGill and Macdonald College. There is a certain magic found among high school and CEGEP students as they begin to discover "the big picture" which just can't be found elsewhere.

"Having first come to the McGill Liaison Office in 1977, I have seen McGill and the whole recruitment field go through a number of changes. Student recruitment is now a fact of life whereas it used to be more of a clandestine operation. We are privileged in Quebec to be part of a circuit involving all Quebec universities who visit all the CEGEPs as a team. There is a spirit of co-operation among the members of this group which is unrivalled in the country, and the whole process of getting the message out to the students has become a very polished and professional one.

"In a sense I feel as though I have come full circle, having lived at Mac in the "huts" as a child when my father was a student at the Institute of Parasitology. My memories are fond

ones, and I have not been disappointed with my move to Macdonald College."

Off Campus

The Royal Victoria Hospital

The 100th birthday of the ROYAL VICTORIA HOSPITAL will not take place until 1994 but celebration plans are already well underway. Plans have been launched for an illustrated volume to commemorate the hospital's century of community involvement and medical research. Dr. Martin Entin, who is chairing the committee responsible for the centennial history, does not believe that the hospital's story should be based on official archives alone. "There is a wealth of material stored in the memories of people who have been associated with the Royal Victoria Hospital over the years," Dr. Entin said. "We want to tap those invisible archives for interesting anecdotes, stories, clippings, photographs, and anything else that will help us distil on paper something of the human quality of the hospital."

Share your memories and memorabilia by getting in touch with Dr. Martin Entin, Royal Victoria Hospital, 687 Pine Avenue West, Montreal, Quebec H3A 1A1 (514) 843-7113.



What's the Alma Mater Fund? How does it help students? Rob Harrison, right, explains the importance of the Fund to Mac students Anna Marie Manuel and Miguel Flores.

Newsmakers



Five former staff members of the School of Household Science renewed acquaintances at a summer wedding in Toronto. Left to right: Kay (McCormick) Bruce-Robertson, Helen Neilson, Kathleen Brown, Helen (Devereaux) Maconochie, and Margaret (Trapp) Mills.

DR. MICHAEL SHAW, BSc(Agr)'46, MSc(Agr)'47, PhD'49, DSc'75, has retired after 22 years at the University of British Columbia. During that time he served as Dean of the agricultural sciences faculty and Vice President of academic development. Since 1983 he has been in the plant science department conducting research in the physiology of host-parasite relations, particularly those of rust fungi on cereal crops. A scholarship has been established in his name to recognize his contributions as a scientist and as a teacher, as well as his service to the university and his profession.

RUSSELL DUCKWORTH, BSc(Agr)'51, Executive Director of the Ontario Ministry of Agriculture and Food Marketing Branch, is co-chairing the renewed Vegetable Industry Advisory Committee with John Curtis, principal of Kemptville College of Agricultural Technology.

JACK D. JOHNSON, BSc(Agr)'52, has been appointed Chairman of the Nova Scotia Dairy Commission.

JOHN E. REDDEN, BSc(Agr)'66, has been appointed Director of the Livestock Services Branch of the N.S. Department of Agriculture and Marketing. John Redden had been with the Extension Services Branch since 1966. In 1973 he was appointed Provincial 4-H Supervisor and in 1986 he was made Assis-

tant Director of Extension Services. In 1974 Jack Redden travelled under a Canadian International Development Agency program to Botswana to assist in the establishment of the 4-H program in that country. He has also served as President of the Canadian Council on 4-H clubs. He was awarded the C.A. Douglas Award in 1986 in recognition of his contributions in the area of agricultural extension work.

J. ROBIN MARSHALL, BSc(Agr)'67, has been appointed Executive Manager of the Kings Regional Economic Development Commission representing the four municipalities located within Kings County, Nova Scotia.

PIERRE SAURIOL, MSc(Agr)'69, was awarded the Medal of Distinction last June by l'Ordre des agronomes du Québec. He was recognized for 20 years of distinguished service in the development of horticulture production in Québec.

SHARON NUSSEY, BSc(FSc)'72, is the new 4-H President for Canada. Sharon is only the second New Brunswicker to be president.

MEHDI ABDELWAHAB, BSc(Agr)'74, MSc(Agr)'79, and JOY MACAULAY, BSc(Agr)'74 are again proud parents. Alexandra Yasmina, a sister for eight-year-old Mekki, was born on May 1, 1989, in Montpellier, France. Mehdi and Joy and family were back in Canada this past summer for a holiday. The baby travelled well and made a good impression with everyone!

KAREN LAPSLEY, BSc(FSc)'74, has completed her DSc at the Swiss Federal Institute of Technology, Zurich, in Food Science and is now in charge of microscopy at the Agriculture Canada Food Research and Development Centre in St-Hyacinthe.

YVAN DUPONT, BSc(Agr)'79 has been appointed Director of Agro-Services of the Bank of Nova Scotia.

BEVERLEY MACDOUGALL, BSc(Agr)'83, graduated from the Ontario Veterinary Col-

lege, Class of '89, and was practicing veterinary medicine in Bowmanville, Ont., before heading to Australia this fall.

DANIEL GILFOY, BSc(Agr)'84, graduated from Mount St. Vincent, Halifax, N.S., with a Teaching Diploma, June '89, and is now teaching in Fort McMurray, Alta.

KATHLEEN RYAN, BSc(Agr)'84, graduated from McGill with a Teaching Diploma, Spring of '89, and is currently at home in Milles Isles, Que.

GARY DESMARAIS, BSc(Agr)'85, is working part-time as a Representative for a Shur-Gain mill in Actonvale and is also a part-time swine farmer.

LORRAINE (HUTT), BSc(FSc)'86 and ROB BERKVEN, BSc(Agr)'86, are the proud parents of Byron Robert, born on July 10, 1989. They are living in Chesterville, Ont., and Rob is working for Nutrite Fertilizers as a Sales Representative.

STUART HACKWELL, BSc(AgrEng)'86, MSc(AgrEng)'88 is a Research Associate at Auburn University, Auburn, Alabama.

ANDRE HOULD, BSc(Agr)'86, is working as an Animal Nutritionist with Vita Distribution (1988) Inc., based in St-Valerien.

PATRICK DUPUIS, BSc(Agr)'86, is a reporter for "Le Coopérateur Agricole," a Co-op Fédérée publication.

JOHN HOSKIN, BSc(Agr)'86, is living in Peterborough, Ont., and working for Master-feeds servicing several mills as a Territory Manager.

KELLEY ALLEN, BSc(Agr)'87, was elected Vice-President of the Junior Farmers' Association of Ontario last spring.

DANIEL BEAUCHAMP, BSc(Agr)'87, is employed by Hoechst Canada Inc - Animal Health Division - as a Sales Representative in Quebec.

CRAIG FAWCETT, BSc(AgrEng)'87, is in Calgary, Alta., working for Esso Petroleum Canada as an Industrial Sales Representative for the Industrial Department of the Marketing Division.

DOMINIQUE HERBERT, BSc(Agr)'87, is a Sales Representative for Provel, the Animal Health Division of Eli Lilly Canada Inc. servicing veterinarians.

HARVEY MACDONALD, BSc(Agr)'87, is working for the Ontario Milk Marketing Board as an udder health specialist in eastern and northern Ontario. He is living in Winchester, Ont.

TAREKEL CHERIF, Dip '84, BSc(Agr)'89, is product director and doing some research and development with MADVAC, Equipment Municipal C.B.C. Inc. Tarek is also lecturing in the Diploma Program.

JOY M. SHINN, BSc(FSc)'84, is Project Officer at the newly incorporated Prince Edward Island Food Technology Centre. Joy Shinn said that the PEI Food Technology Centre provides a centre of expertise to assist the agriculture and fish processing sectors in responding to technological developments and new processing opportunities. The centre also provides analytical and technical services, as well as technical information search and retrieval to the PEI food industry. "We feel that the development of this centre demonstrates the PEI government's level of commitment to the industry, ensuring the continued growth of the agriculture and fish sectors. I would be pleased to provide more detailed information to any interested person and can be reached at: Prince Edward Island Food Technology Centre, P.O. Box 2000, Charlottetown, PEI, C1A 7N8."

DONALD GARFAT, Dip '85, and his wife are the proud parents of Matthew Thorne.

RANDY TRUMPLER, BSc(Agr)'85 is now working for MSD Agvet as a Technical Sales Representative in central Ontario and the Maritimes.

DARRYL ROBINSON, BSc(Agr)'87 has been named Territory Manager of the Year in the Ontario Shur-Gain Division of Canada Packers for his outstanding performance in the eastern Ontario territory. While at Macdonald, Darryl completed the Diploma program before graduating with a BSc in Agricultural Economics.

LISE LEDOUX, BSc(FSc)'88, is working as a Clinical Dietitian in Campbellford and Cobourg hospitals. She is also working with the Health Unit in Cobourg as a nutritional educator. Prior to August Lise had been employed as a Rural Organization Specialist for the Ontario Ministry of Agriculture and Food in Avonmore. She is now living in Brighton, Ont.

STEPHEN GUILLOT, BSc(Agr)'89, is a Research Assistant at the Agriculture Canada St-Jean Research Station where he is working on a joint Macdonald-Agriculture Canada strawberry breeding program.

Deceased

PROFESSOR GEORGE SHARVELLE, BSA'30, of Lafayette, IN, on January 23, 1989.

ANNIE L. (HAMBLY) BRECKENRIDGE BHS'31, of Toronto, Ont.

HUGH B. EARLE, BSc(Agr)'46, of Kelowna, B.C., on August 23, 1989.

CLARA (GERSTEIN) TEPNER, DipEd'47, of Willowdale, Ont.

DR. EDWARD J. R. BOOTH, BSc(Agr)'51, of Stors, CT, on April 19, 1988.

MICHAEL F. GILLIS, BSc(Agr)'51, of Dartmouth, N.S. on June 8, 1989.

G. ROBERT DOUGLAS, BSc(Agr)'57, on July 20, 1989.

DOROTHY (ANDERSON) GRAHAM, BSc(HEC)'61, of Ottawa, Ont.

MICHAEL KENNY, Dip'61, of Orleans, Ont.

LOUISE CARON, MSc'88, and her mother were killed in a tragic car accident earlier this year. While at Macdonald College, Louise was conducting research on beluga whales under the guidance of Dr. Tom Smith. She was studying for her PhD at the Maurice

Lamontagne Institute in the Gaspé.

Margaret R. Stewart

A graduate and former staff member of Macdonald College, Margaret R. Stewart, BHS'40, of Arnprior, Ont., died on August 25, 1989. After receiving her degree in 1940, Margaret Stewart worked at Lower Canada College before returning to Macdonald College. She was Director of Food Services from 1943 until 1969 when she retired due to ill health.

Brittain Memorial Fund

With the death of Mrs. Brittain this past summer, many members of the Macdonald community were reminded of the great contributions made to Macdonald College by both Mrs. Brittain and her late husband Dr. W.H. Brittain. In 1971 the family and friends of the late Dr. Brittain established a special fund in his memory.

The Brittain Memorial Fund was developed as a suitable and fitting memorial to help maintain the Morgan Arboretum and to support special projects that are felt to be in line with his special interest in the property. The Morgan Arboretum was set aside and developed under Dr. Brittain's vision and stewardship and now serves as a unique centre in the Province of Quebec for the teaching of conservation and the demonstration of the wise use of renewable natural resources to all age groups.

Donations to this fund will be gratefully accepted in memory of both Dr. and Mrs. Brittain. They should be sent to the Morgan Arboretum Association, P.O. Box 500, Macdonald College, Ste. Anne de Bellevue, Que., H9X 1C0, and should be clearly identified as gifts to the Brittain Memorial Fund, which are tax deductible.

The news of the death of **Dr. W. Rowles**, much beloved Emeritus Professor of Agricultural Physics on November 15, 1989, will sadden all who knew him. Our sympathy to Dr. Laura Rowles. (More to follow.)

Keeping in Touch

Familiar Names

This is just a note to say how much I enjoyed the article "AIC: The Mac Connection" (*The Macdonald Journal*, Spring 1989). My dad Frank Drayton would have been happy to see it as well. So many familiar names were mentioned, and I well remember my dad going to the CSTA meetings.

My parents met at Macdonald. My mother (Alice England from Knowlton, Que.) took the Teacher's course in 1912, and I graduated in Home Economics in 1945. Mac has always been an important part of my life.

Katharine Drayton Gray, BSc(HEC)'45
Ottawa, Ont.

A Tribute to Mary Brittain

I received my copy of the Summer 1989 Journal today and, as usual, have read it from cover to cover. I was really taken by Helen Neilson's and Arthur Jones' memories of the campus and of Ste. Anne's. I am really showing my age I guess when I look back to my time as part of the Clan on campus. Keep up the good work and keep the Journal coming. Please let all of us in the outlying parts of the world know how to get a copy of Helen's book when it is published.

The main reason for my letter is to express my sorrow at the news of Mrs. Brittain's death. I feel that she deserved more than a single paragraph in the Journal. I, of course, am probably prejudiced due to the fact I was charmed into my first love of an older woman at the tender age of 12 by being fed the most fabulous brownies in her kitchen when spending a month on campus with my sister. When I returned at the very mature age of 19, I was continually charmed and embarrassed by the attention paid me by the Dean's wife, especially at dances when I would be greeted with a kiss and a long friendly conversation on my health and well being much to the amusement of my girl friends of the time. She was a very special lady whose wondrous smile warmed the hearts of many a lonely student, especially in the days when the campus closed up

for the summer. It was not until many years later that I learned that she and my mother were old friends growing up on the campus in the very early days.

She to me was the very epitome of what the meaning of Mac was and is. She was a truly special lady who was part of the Macdonald scene for so long and who helped Dr. Brittain make Mac a place where students are the important ingredient that makes it work, in spite of all the changes.

In Arthur Jones' memory walk down Ste. Anne's Street I didn't visualize the grocery store where we used to return our kit bags full of empty bottles for refilling with that brown nectar "Molson's" in time for the next Saturday night of nines or an auction in football alley. All the other spots ring that familiar bell: the Rex on Sunday nights that timed its show to ensure that the girls were back by 10 o'clock or 11 if they were seniors. Daoust's where I at the age of 12 left without my change as I thought the cash system had taken my money never to return it. I hope they have such a thing in Quebec as national historic sites as Daoust's is one that should be kept as one.

Enough of my ramblings which are really my way of saying thank you for the Journal and your efforts to keep it both relevant and in touch with us oldies who do enjoy our memories even if they become a bit exaggerated with time.

Jim Currier, BSc(Agr)'52,
Glenfield, New Zealand

Editor's Note: We fully agree that Mrs. Brittain deserved a more fitting tribute. Jim Currier has, in his letter, written that tribute, and we believe it would be just what Mrs. Brittain would have asked for. As we were already in page form when Mrs. Brittain died, we could only announce her death at that time. Since then we have learned that contributions in her memory may be made to the Brittain Memorial Fund. For more information on that fund, please see page 45 Deceased, Newsmakers

section.

Keeps Getting Better

I've been enjoying each and every issue of the Journal. It just keeps getting better. I really enjoy reading the articles about former students, where they are, and what they are doing today.

Nora Templeton, BSc(Agr)'82
Kemptville, Ont.

Journal Stays in P.E.I.

Sincere congratulations on the recent edition of The Macdonald Journal. The magazine was most attractive and contained an endless variety of interesting topics.

My copy stayed in Prince Edward Island. I passed it on to Harry and Colleen (Coates) Younie. Harry, BSc(Agr)'72, and Colleen, BSc(Agr)'72, with their delightful family of three girls and two boys, live at Bangor, P.E.I. Colleen is Ag Rep out of Montague and Harry works with Federal Research.

Willa B. Hooker,
Ormstown, Que.

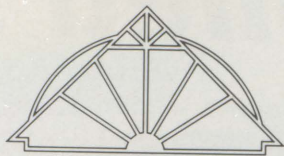
Encouragement to the Team

I would like to thank you for the wonderful article you wrote for the Summer 1989 Macdonald Journal—"Winning Woodswomen." Your article serves as a great encouragement to our team and has made people aware of the challenging and rewarding experiences woodsmen brings us. My coach, my fellow woodsmen and woodswomen appreciate what you have written.

Thank you for your time and enthusiasm. We hope you will stay in close contact with us for a new year is already underway. We hope for many victories, and I'm sure it will be another year filled with unforgettable moments!

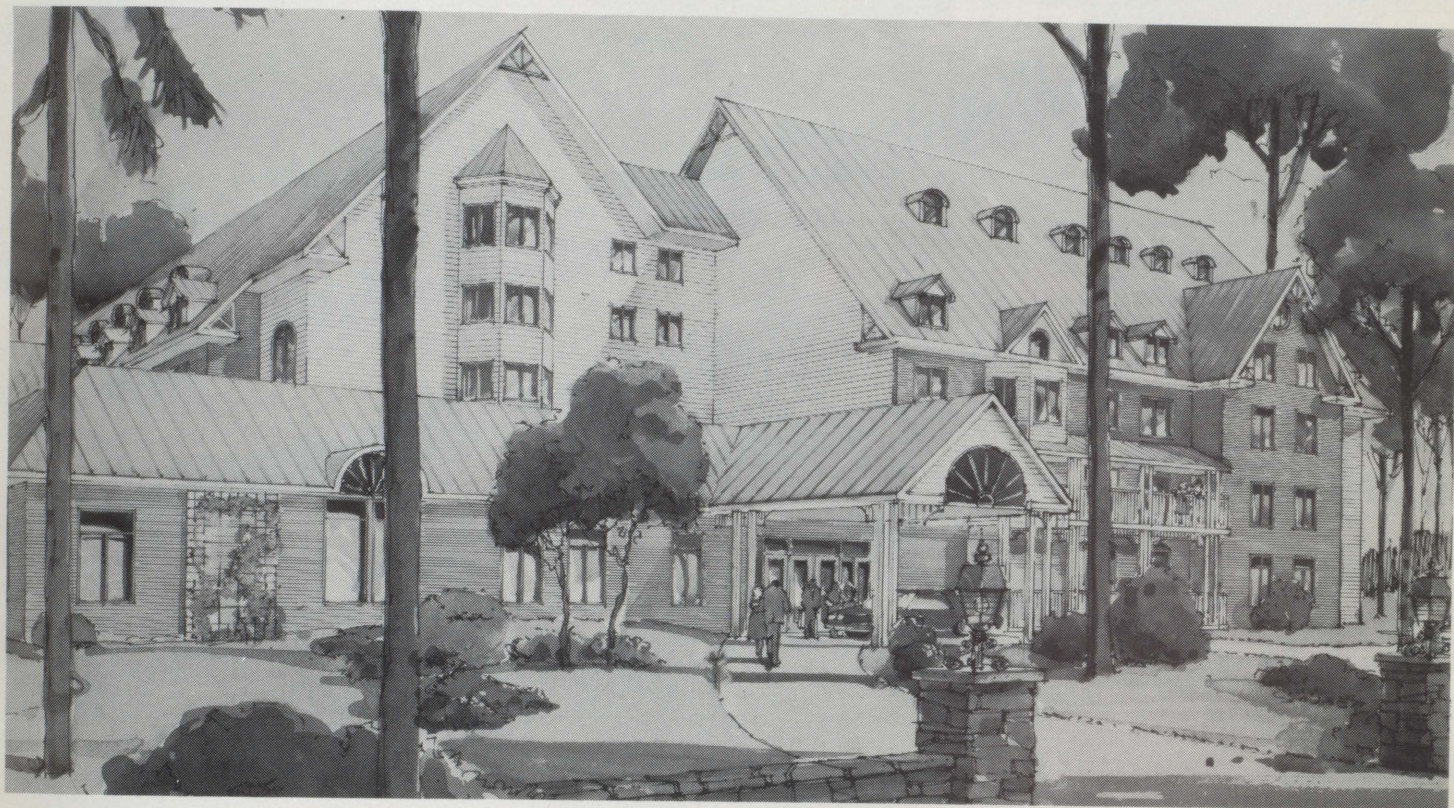
Hélène Chrétien,
1988-89-90 Woodswomen

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